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CASES OF INTERMITTENT FEVER,

IN WHICH

BLEEDING WAS EMPLOYED IN THE COLD STAGE.

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CASES.

Case I.—James Ward—admitted into Royal Ordnance Hospital in November 1823.

Has suffered several attacks of intermittent annually, since the year 1809, when he served in the expedition to Walcheren. Of late his indispositions were long, and left him more and more debilitated. Several of my pupils watched this man closely for some time, with a view to bleed him in the cold stage, but they were not fortunate enough to arrive in time; they bled him twice, however, in the hot fit, from the severity of the symptoms, and with considerable temporary relief, but without preventing or mitigating the violence of the subsequent paroxysms. Some time afterwards, in the presence of Drs Lucas and Robinson, two of my pupils, now in the Ordnance Medical Department, I bled him from a vein in the arm, during the cold stage; it was very severe; the rigors were violent, and the sense of coldness insupportable. He complained much of his head and loins, his face was of a livid colour, and the vessels of the conjunctiva turgid with blood. Pulse 100 or 105, and oppressed, breathing short and anxious, and, to use his own expression, he felt "a heavy "load about his heart." When the vein was opened, the blood trickled slowly from the wound, but it soon came in a jet. By the time 8 ounces were taken, the rigors ceased, and he expressed great surprise at the suddenness of the relief; when 12 ounces were abstracted, he was free from all complaint, and his skin had a comfortable moist feel. He enjoyed a good night; he had no return of the intermittent; and his recovery was rapid.

I had an opportunity of seeing this man daily for some months afterwards, and his constant tale was, that he "had not felt so well, or so much of a man" since he went to Walcheren. The only remedies used after the bleeding were laxatives and infusion of quassia.

Case II.—James Aitchison, aged 33, had had repeated attacks of ague. Was seized with severe rigors when on the top of the Carlisle mail, travelling to Edinburgh. The paroxysm was evidently produced by exposure in bad weather, first to rain, and then to a keen frost, with wet clothes. When I visited him in hospital, he had laboured under the rigors for no less a period than twenty-six hours,—in truth, it was the most severe cold stage I had ever seen in any country. He had severe pain in the head, back, and loins; oppression at præcordia. Warm drinks, stimulants, and

hot applications had been employed without benefit. The agitation of his body was so great, that it shook the very bedstead on which he lay, and threatened to terminate in convulsions. Tongue loaded, but moist; breathing hurried and laborious; pulse 65, oppressed; skin not below the natural standard over the trunk, but all his extremities were cold, and he complained of a sensation of extreme coldness. Fortunately, I made a good orifice, which is not always easily done from the tremors, and the blood flowed in a good stream; 12 ounces were abstracted in three minutes, with very trifling relief, except to his breathing; but during the flow of the second pound, he became more and more easy, and the rigor ceased completely. This pound was abstracted in two minutes; the arm was tied up on the approach of syncope, from which, however, he soon recovered. He lay quite easy; his body, and even the extremities, became of a proper temperature; and his skin felt moist; the pulse rose from 65 to 106; he passed a good night; had several stools during the next twenty-four hours; was found perfectly easy next day. On the following day he was convalescent, looked well, and asked for more food, and had no return of the disease.

Case III.—Thomas Bullock, a strong healthy young man, reports that he had had the disease in the tertian form for twelve days. Attributes it to exposure to cold when on sentry in the arsenal at Woolwich. He was in the sweating stage when brought into the hospital on the 4th March 1826.

6th.—Had a severe rigor, followed by intense reaction; was found sweating at the hour of visit; no stool.

8th.—Cold fit came on at three A. M. After it had continued half an hour and was well formed, his pulse beating 84 and oppressed, a vein was opened in the arm by Mr Marshall, (one of my most zealous pupils, now assistant-surgeon of the 87th Regiment,) in the presence of several other gentlemen. When 15 ounces of blood were abstracted the rigor ceased; the pain of head and loins, and the oppression at præcordia vanished; the breathing became natural; the pulse rose to 95; in half an hour after the operation, said he felt quite well; no hot fit followed; a very gentle moisture appeared on the surface, but there was no sweating stage; pulse 95.

10th.—Says he feels quite well, and free from that anxiety and oppression which has affected him from the time he caught cold at Woolwich; is able to be out of bed and dressed; appetite improved. He escaped for eight days.

18th.—Was again attacked with rigors a quarter of an hour before the visit. He is now in a severe well-formed cold fit; breathing hurried and laborious; the whole body is in a tremor; tongue rather loaded; passed a bad night; pulse 120, oppressed. Attributes this paroxysm to cold when in the privy. A vein was opened in the arm, and 14 ounces of blood were abstracted before the fit was subdued; there was no tendency to syncope; pulse 110, full, and of good strength.

No hot stage; no sweating stage followed.

19th.—Yesterday, for some time after the bleeding, he appeared free from all complaint; but towards evening was attacked with violent headache and pain in the belly. Blood was again taken from the same orifice, to the amount of 12 ounces, with complete relief, since which he has been easy and slept well; bowels slow.

20th.—Slight chill this morning, which appeared to be cut short by a warm drink; no fever followed; passed a good night; bowels not moved.

22d.—Had a slight sensation of cold this morning, but there was no hot stage; says he feels quite well; bowels slow.

23d, 24th and 25th.—Reports state that he went on improving.

26th.—Says he does not feel so well; but there has been no tendency to rigor; bowels bound.

31st.—He went on improving in health, and without any return of the disease till this day. He was found at the time of visit in the hot stage, which is scarcely perceptible, after having experienced a slight rigor, which lasted for twenty minutes; tongue white and loaded.

April 2d.—Had a severe rigor at 10 A. M. which was followed by fever and the sweating stage; at 2 P. M. he was found quite free from complaint.

His health went on improving gradually till the 25th, when he was discharged the hospital cured.

The same individual reported himself sick on 30th May following, and was taken into hospital, after a severe paroxysm of intermittent; states, that since his discharge, his health had been very good and his strength increasing, but that he has had three slight rigors; his appearance, however, is much improved.

31st.—Says he expects the paroxysm to-morrow morning at nine o'clock; bowels regular; appetite good.

He was ordered to take three grains of sulphate of quinine every half-hour, commencing three hours before the expected time of attack.

June 1st.—He took six doses of the quinine; escaped the paroxysm; had no return afterwards, and was discharged on the 4th.

Case IV.—Robert Smith, a stout man, whose health had formerly suffered from a residence in a warm climate, states, that he had had an intermittent fever five years ago when stationed at Woolwich, but has not had a return of the disease till now; was taken into hospital on 7th March 1826, labouring under febrile action, which he said came on after a severe rigor; the febrile symptoms continued with disturbed sleep till the 13th day, with little variation. He was then seized with a severe rigor, attended by sensations more than usually distressing; above all he complained acutely of his head. He was bled during the cold stage to twelve ounces, when the tremors and the other symptoms ceased all at once; he soon after fell into a profound sleep, his skin having a gentle moisture; there was no hot stage.

14th.—Slept well, and feels free from all complaint.

15th.—Slight chill, but no subsequent pyrexia; no appetite; bowels freely moved by a dose of salts; tongue loaded; pulse natural.

16th.—Had a cold sweat during the night; no return of paroxysm; says he feels better, and has some appetite; pulse natural; tongue less loaded.

17th and 18th.—Improving; half diet.

19th.—Had another cold perspiration in the night, but says he feels well; bowels rather slow.

20th.—Complained of severe headach yesterday afternoon, attended with some febrile action; says he is now better; appetite improving.

21st.—Slight chill, which continued for nearly an hour, attended with griping; but no febrile action followed; bowels regular.

22d.—Had a severe rigor this morning, attended with difficulty of breathing, oppression at præcordia; pain in back and loins, and severe pain in the head. At the visit was found in the hot stage, complaining much of headach; tongue loaded; pulse 130; bowels open; cold water to be applied to the head.

23d.—The headach has continued violently since the commencement of the cold fit yesterday; cold applications produced temporary relief only.

Applicentur hirudines xii. capiti. Habeat pulverem laxantem statim.

24th.—Leeches relieved the head; had another paroxysm this morning.

25th.—Passed a bad night; no headache.

Habeat Tinct. opii gtt. xxx. h. s.

26th, 27th, 28th.—Same report, "doing well;" bowels regular.

29th.—Says he feels pretty well, but that he has occasional headaches.

30th and 31st.—Had slight paroxysm each day, with some headache; pulse not higher than 96.

April 1st.—Another paroxysm with severe headache after a bad restless night.

Capillitio abraso applicentur hirudines xx. Repetatur pulvis laxans.

2d.—Experienced another paroxysm at half-past nine this morning; still complains, although he is perspiring, of oppression at præcordia, difficulty in inflating the lungs, and headache; had a restless night; sixteen of the leeches only fastened; they bled well, relieving his head for the time.

Applicentur hirudines xii. capiti, et repetatur pulvis laxans.

Feels better; no paroxysm; had a bad night, during the whole of which the perspiration continued; leeches bled well, and relieved the head completely.

From this time to the 8th he gradually improved, having had, however, a slight paroxysm on the 4th, 6th, and 8th. Next day he began the use of the quinine in five grain doses, and suffered no return. He took in all 116 grains, and he was discharged cured on 24th.

Case V.—William Macauley was admitted into the Royal Ordnance Hospital on Wednesday 31st May, labouring under a severe hot fit, attended with the usual symptoms, great headache, severe pain in the back, loins, and limbs; great oppression of præcordia, extreme heat, thirst, and general uneasiness; tongue loaded; pulse hurried. This stage lasted for five hours before perspiration appeared.

This was the second paroxysm with a day intervening.

June 1st.—Had no sleep during the night, but feels pretty well to-day; two stools.

2d.—Had a severe cold stage at 2 P. M. which lasted till 4. He was visited at 5 P. M. when he was in the hot fit, suffering from all the symptoms formerly described.

3d.—The sweating stage did not appear last evening till 8 o'clock. Has had no sleep; two stools; tongue clean.

4th.—The paroxysm took place at 1 o'clock P. M. this day; about 12 o'clock the pulse was counted, and was found to beat 84, and oppressed; the precursory symptoms had just commenced; at half-past 12 the pulse was 66, and still more oppressed. This rigor was very severe; the tremors of his body shook the bed, and his sense of cold was unsupportable, at the time that a thermometer placed under the tongue stood at 100. He complained of great oppression; pain of back and loins; respiration difficult and hurried. The rigor was allowed to be formed for 10 or 12 minutes before a vein was opened, which was effected with difficulty, owing to the tremors. He bled from a small orifice until 24 ounces were drawn, which occupied 16 minutes, when the rigor ceased, and all its unpleasant symptoms.

June 5th.—Last evening he began to complain of a severe pain in the back and head, with thirst. Heat 105°; pulse 115, but soft. Relief soon followed the exhibition of 40 drops of laudanum in an ounce of the spirit of mindererus; passed a good night with much perspiration; says he feels quite easy to-day; much easier than he has been at any time since the first paroxysm; bowels slow.

Had attacks of a slight nature on the 6th, 8th, 10th, 12th, 14th, and the following report was made on the 15th. Health evidently improving; sleeps well; bowels regular; tongue clean and moist; thirst diminished.

16th.—Had a severe rigor at 11 A. M. It was of very short duration.

Considerable reaction followed. Had two slight paroxysms on the 18th and 19th; and on the 20th he was ordered to take five doses of the quinine; each dose to consist of four grains; after which he had no return of the disease.

Case VI.—Alexander Clark, a stout well-made young man with a florid complexion.

Had three attacks of tertian intermittent before he reported himself sick; came into hospital on 21st May 1826 with the fourth paroxysm upon him. He was attacked at 7 A. M. with rigors; the fit was very severe. The hot stage had given way to the sweating when I saw him. He could assign no cause except that he had done duty at Woolwich a few months before. Tongue foul; fever diet.

23d.—Was free from complaint yesterday; had six stools from the laxative. The rigor came on this morning at half-past six, and went through the regular stages with the usual distressing symptoms. Tongue much loaded; B. regular; no appetite; urine scanty.

Infusion of quassia.

He experienced severe paroxysms on the 24th and 26th, attended with headache and a severe pain in right hypochondrium.

28th.—Rigor came on at 11 A. M. Five minutes after it was well formed, a vein was opened, but the operation was badly performed owing to the violent tremors; 20 ounces of blood were slowly drawn, when the rigor ceased, together with the tremors, the difficulty of breathing, the oppression at præcordia, and the headache, &c. The painful sense of cold gave way all at once to a pleasant feeling of heat, and the pulse became natural. The bleeding was not carried the length of producing syncope. There was no hot stage, and the skin was covered with a gentle moisture. In half an hour his only complaint was of slight nausea; he is able to change his position at pleasure, and feels disposed to sleep.

29th.—Had considerable heat of skin and thirst yesterday evening, which he attributed to the pressure of too many bed-clothes; the blankets not having been removed which he had caused to be heaped upon himself on the approach of the cold stage. Slept well during the night; feels quite easy; no stool.

30th.—Had an exceedingly slight paroxysm at noon; slept well last night; no appetite; had five evacuations from the bowels.

31st.—Had another slight chill this afternoon, but there was no rigor or hot stage—complains of pain in left hypochondrium. Passed a good night; B. regular; considerable thirst; tongue still foul; pulse 100, very full, but soft.

Imponatur vesicatorium parti dolenti.

His general health and appearance improved rapidly after this period, but he continued to experience daily slight attacks till the 7th June, when he got, thrice a-day, five grain doses of the quinine.

June 8th.—Took the quinine at eleven, at one, and three o'clock, nevertheless he had a paroxysm at a quarter past three, which he is disposed to attribute to exposure when asleep between two open windows; high excitement followed the rigor, which terminated in the sweating stage.

He continued to take the quinine on the 9th and 10th, and had no return of the disease. He regained his health and strength rapidly, and was discharged on the 17th June.

Dr Kellie of Leith was present when Clark and Macauley were bled; so were several gentlemen who were attending my lectures at the time.

Case VII.—Mr Marshall, assistant-surgeon of the 87th Regiment, whose name I have had occasion to mention before, when on a visit to his friends in the west of Scotland, was called to see a middle-aged man who had

served in the army in a warm climate, and who had suffered most severely for some years from intermittent fever. Every kind of remedy had been tried in vain, and he gladly submitted to the treatment of bleeding in the cold stage, which Mr Marshall had seen so successfully performed in similar cases. "On the 6th July 1826," says Mr Marshall, "I was asked to visit this man for the first time. Previous to my going, I informed Mr Staff-Surgeon Marshall of the nature of the case, in as far as I was enabled from the history given by his relations. Mr M. recommended a grain of opium to be given every hour for three hours previous to the attack. The shivering commenced regularly about six in the evening. The opium was given at 3, 4, and 5 o'clock P. M. with no relief. 8th.—Opium continued as directed; no relief; bowels opened by rhubarb. 10.—No relief from the opium. 12th.—The cold fit is very severe; the feet cold; heat of the superior extremities rather above the natural standard and moist; pulse very small, not easily perceived; pain of head excessive; great thirst; pain in back considerable; complains of distressing sense of weight at the præcordia. He solicited me to do something for him, as he could not long endure the sense of cold. I opened a vein in the arm by a pretty large orifice. At first the blood trickled down the arm, but shortly came in a full stream. When 10 ounces of blood had flowed the shivering ceased, and all the bad symptoms vanished. Half an hour after the bleeding, says he is quite well. On the 14th, 16th, 18th, no return of fever." Mr Marshall assured me that he had had no return of the complaint when he last visited him, which was several months after the bleeding, and that the cure seemed to be as sudden, and apparently as permanent, as that which took place in Ward's case, the first recorded in this paper.

Case VIII.—George Scott, aged 36, a native of Eyemouth, was seized with an intermittent of the quartan type when in Lincolnshire in August last. He had used various remedies, and among the rest bark, without relief. The paroxysms have continued with such regularity, that he has not escaped a single attack since the commencement of the disease. His health and strength have suffered so much, that he has been unable to work for a considerable time, and came to Edinburgh, almost in despair, to seek relief. Having applied to my friend Dr J. A. Robertson, this patient was handed over to me. His look is meagre and emaciated; he appears the wreck of a strong and active man. He gave the above account of himself, and added, that he has great thirst and no appetite, that he sleeps badly, is never free from pain in the back part of the head and left hypochondrium, and that he has become as weak as a child; and that his vision has lately become impaired. Pulse 100, and weak; tongue clean; B. regular.

On Thursday, 28th December 1826, at 2 P. M. the rigor commenced, and when it had continued for half an hour, I opened a vein in the arm, having placed him in the sitting posture; his whole body was affected by violent tremors, his teeth chattered; he complained of intense cold; dimness of sight; severe pain in the back part of the head, and in the left side, loins, and inferior extremities; his pulse was weak and fluttering, so as not to be counted, and the countenance expressed great suffering. Owing to the violence of the tremors, a bad orifice was made in the vein, and the blood flowed slowly. When about twelve ounces were abstracted, the rigors diminished, the uneasy feelings began to subside; and by the time 16 ounces were taken, he was free from tremor and pain, and said he felt quite well. The pulse was now a good pulse, but I neglected to make a memorandum of its number at the time. He showed some tendency to syncope before his arm was tied up.

My friends Drs Robertson and Scott, and Mr Syme, together with several other gentlemen, were present when the operation was performed. He was again visited in an hour, when he was found breathing naturally,

in a sweet sleep. Pulse 84, and of good strength. I was told he had been very faint, and had vomited immediately after we left the house.

In an hour after last visit I saw him again; his body had the natural heat; there was no perspiration; he was still asleep; pulse 80, and full. He was roused after the pulse was numbered, for the purpose of ascertaining the exact nature of his feelings. He said he had not felt so free from indisposition since the first period of the attack, and that he had been long a stranger to such a comfortable refreshing sleep; took some gruel, soon fell asleep again, and passed an excellent night.

Friday 29th.—Said he felt quite well; was free from the pain of head and left hypochondrium, and he thought his strength improved; in fact he walked to the dispensary by himself; B. regular, tongue clean.

Saturday 30th.—He came to the dispensary at the visiting hour, and said that he felt himself "a new man."

Sunday 31st.—He came to the dispensary again, and was seized with the paroxysm a little after the hour of visit. The fit was preceded and accompanied by much slighter pains and general disturbance than any former attack. In about ten minutes after the fit could be said to be well formed, the rigors were very severe, the tremors violent, and the feeling of debility was so overpowering that he declared he could not support himself longer on a chair; his breathing was quick and laborious, and his teeth chattered; I tied up his arm and opened a vein, and actually before *three ounces* were abstracted, the paroxysm ceased, and with it all the other unpleasant symptoms. Although a minute before he had declared that he could not sit up a moment longer from debility, yet he now said he felt his strength restored, and had no wish to lie down; in less than ten minutes, I had the pleasure of seeing him running home. There was no subsequent heat of skin, and no sweating; his pulse, before he left the dispensary, was 86, and of good strength; whereas before the bleeding, it was 100, and so weak as scarcely to be counted.

Monday, 1st January.—I sent to inquire how my patient felt; the messenger was told that he had had a good night, and was out making merry with some friends.

On Wednesday he had a slight chill without subsequent fever or sweating; he afterwards got the sulphate of quinine, and had no more of the disease.

Case IX.—A woman, 27 years of age, the mother of several children, experienced repeated paroxysms of irregular intermittent for several months, till at last her general health became much impaired under the disease in the tertian form. She was bled by Mr Drever, one of my pupils, towards the termination of a slight cold stage, certainly before the appearance of the febrile symptoms or second stage. About 12 ounces were abstracted; neither reaction nor a sweating stage followed; and there has since been no return of the complaint, although several months have elapsed. She had neither bark, sulphate of quinine, nor arsenic. In fact, no medicines were prescribed but those of a laxative nature.

Case X.—David Lambert, ætat. 36, sailor, residing at No. 9. Couper Street, North Leith, states, that he was attacked with intermittent for the first time on the 9th May 1827, when on his voyage from Bourdeaux, in the ship Enterprize of Newcastle. At the time of attack they were off Dover in very bad weather, ten days from Bourdeaux. Since then the paroxysms have returned daily, the cold stage continuing for three quarters of an hour, often for upwards of an hour. It has always been severe. His general health soon gave way. He left the ship, disabled, and arrived in Leith on the 30th May. Attributes his illness to sleeping in bed with wet clothing, and going frequently on deck from the galley, in a state of profuse perspiration, at the time he acted as cook. When I visited him, he appeared to be very unwell, feverish, restless, and anxious about his

fate; fearful of the consequences of the approaching cold stage, which he expected in a few hours. Says he sleeps little; has constant thirst and diarrhœa; pulse 100; tongue white and loaded, but moist; has a bad cough with expectoration; slight difficulty in breathing; and constant dull pain in the chest and loins: appeared much debilitated; lies a good deal in bed, and when he sits up complains of swelling of the feet and legs, which are œdematous; stethescope announced bronchitis generally in both sides of the chest. The Captain of the ship gave him something in treacle, which he supposed to be bark. Mr Henbest and Mr P. Mackintosh, two of my pupils, volunteered to watch the case, with a view to bleed in the cold stage. The remainder of the history is taken from their united report.

"June 7th.—Found him very unwell; coughing incessantly and violently; complaining of sense of weight in the chest; pain of head and giddiness; cold extremities; pulse 95, and oppressed." These gentlemen continued to watch him, and at twenty minutes before 8 P. M. "he was seized with rigors, which soon became very severe. The breathing was hurried and laborious; his cough and other symptoms greatly aggravated. The whole body was in violent agitation, and his teeth chattered. When in this state, a vein was opened in the right arm, and four small tea-cups nearly full of blood abstracted, (about 16 ounces.) He was so suddenly and so perfectly relieved, that he declared he felt quite well, his body became warm, and he soon fell into a quiet slumber. Pulse natural. After regulating the quantity of bed clothes, we took our leave."

"8th.—Found our patient looking much better, having entirely escaped the hot and sweating stages yesterday; and he enjoyed for the first time a night of uninterrupted sleep. The cough and wheezing are diminished. He expectorates easier."

"9th.—By account had a very slight chilliness last night; the whole paroxysm being of short duration; there was scarcely any heat, and very little perspiration. In fact, he said there was none of the bad attendants of the previous attacks. He was again visited at 9 P. M, and found in the cold stage, which lasted only ten minutes. The shivering was so very slight, as scarcely to be perceptible. Passed a good night; was able to sit up a considerable part of the day; strength improved to his own feelings. The cough still continues with the expectoration. Passes dark and fetid stools. Calomel and rhubarb. A blister to the sternum. Milk and farinaceous diet.

Had an attack on the 10th, and another very brief one on the 11th; from which date till the present day, June 29. there has been no return of the disease. There is no affection of the chest; his aspect and motion bespeak health, and his strength is perfectly restored, without the use of bark, quina, or arsenic." My reporters state, that on the 19th, the patient expressed himself in the following terms: "If any man had told me, twelve days ago, that I should be so well as I am now in six months, I could not have believed him."

Case XI.—Corporal Geo. Webster, Royal Artillery, has served thirteen years, three of which were in the West Indies, where he enjoyed excellent health; but since his return, has shewn a tendency to chest complaints; has been once in this hospital with a bad catarrh, from which, however, he recovered. He presented himself again at the hospital this day, June 24. 1827, and stated, that he had for some days past suffered from attacks of rigors, alternating with flushes of heat, and attended by pain in the loins and belly, diarrhœa and slight nausea. His pulse was quick, and tongue loaded. He got an emetic, and daily laxatives, and was discharged on the 29th, supposed to be cured. He re-appeared on Thursday, 5th July, and reported, that since his discharge on 29th *ultimo*, he had experienced three regular paroxysms of intermittent, with a day intervening; the last attack was this morning. The cold stage was very severe, and continued for two hours; it was succeeded by the hot fit, and terminated in sweating. Complained much of general pains, but suffered distressingly from headache during the paroxysm. He got nothing but laxatives; and had attacks on the 7th, 10th, 12th, and 14th. He escaped from the 14th till the 20th, when he had a very violent paroxysm; and on the 22d, he was

bled in the cold stage, and the following report was made at the time: The cold fit was severe, accompanied by violent pain in the head and belly, and oppression at præcordia, heat 95°, pulse 105, weak and irregular, respiration hurried and difficult. When the cold fit had continued for ten minutes, a vein was opened, the blood trickled down the arm at first, but afterwards came in a good stream. When about eight ounces of blood were taken, the pains every where ceased, the tremors became slighter and slighter, and were completely stopped before sixteen ounces were abstracted. He felt a slight tendency to syncope, and the arm was tied up. He spoke a great deal of the sudden and complete relief which he had experienced, and contrasted his present situation with the pains and oppression he had had in previous paroxysms, which always continued till the sweating stage had gone on for a considerable time. His pulse now beat 75, strong and full, heat 100°. No hot or sweating stage followed the bleeding. Four hours after the bleeding, he was again visited; pulse 110, of good strength, skin hot from pressure of bed-clothes, which were now carefully removed, to his great relief.

23d.—Says he has not been so well since first attacked; feels, if any thing, rather stronger, slept well, bowels open, appetite pretty good, and had no return of the disease. Had no medicines but laxatives and infusion of quassia.

Case XII.—Bombardier James Armstrong, aged 19, is tall, spare, and pale, says he always enjoyed good health till fourteen days before he left Woolwich, when he was seized with intermittent fever. After the first fit, he had no return for nine days, which he attributes to the use of bark, which was prescribed for him in the General Hospital. But when taking the bark, and while yet in hospital, he was again attacked, and had a paroxysm every day for four successive days. He still continued to take the bark in the intervals. He was removed from the hospital on Wednesday the 11th July, to embark with his company for Leith Fort. He escaped a paroxysm on the following day, but had one on Friday the 13th, and every day since.

20th July 1827.—Presented himself at the hospital this morning. States, that the paroxysm came on at 7 A. M. which was very severe, particularly in the cold stage. Says he suffered most from headache, and a trembling feeling, together with a tightness at his breast. Feels now considerable prostration of strength; has no appetite, tongue white, not much loaded; thirst; bowels have been very open for four or five days; pulse 100, and full.

21st September.—At five this morning, was seized with a paroxysm. He describes the cold stage as being the most severe yet experienced. A smart hot stage followed, with excruciating headache. The sweating stage is now over, and he feels relieved. A laxative taken yesterday has operated four times.

22d.—Paroxysm came on at 7 this morning. Was bled in the cold stage, after it was allowed to be well formed. He says the fit was very violent, and that his sufferings were produced by severe pain of head, difficulty of breathing and tightness across the chest. Pulse so quick, irregular and small, as not to be counted. When about an ounce of blood was abstracted, he felt much relieved; immediately afterwards the rigor ceased suddenly, the sense of cold gave way to a comfortable feeling, and all the other painful sensations vanished; and not more than eight ounces of blood were drawn. In the course of a quarter of an hour, said he was sensible of a little heat and slight thirst. Was visited four hours after the bleeding. Says he feels quite well, and declares he never felt so well, or so free from uneasiness in so short a time after any previous attack, and that he has no feeling of debility, which he used to have. I should have mentioned, that the heat under the tongue in the cold stage was 105°; heat taken at this visit 100°, pulse 76, full and strong. Has had no stool to-day.

23d.—At twenty minutes before eight this morning felt a slight chill, succeeded by a flush of heat, but, to use his own words, he had "*no fever to speak of.*" There was no sweating; the whole only lasted for about three quarters of an hour: in former paroxysms, the cold fit alone lasted two or three hours, and the

whole attack occupied five or six. Says he feels uncommonly well. Appetite much improved. Did not sleep much during the night. Took a laxative.

24th.—Slept well, had a slight sensation of cold this morning, but no fever or perspiration. Physic operated thrice.

25th.—Says he is better and stronger. Slept well, but perspired copiously during the night. Appetite very good. Bowels regular. At the same hour this morning he experienced a slight sense of cold in his loins, but there was no general chilliness, and no heat followed.

26th.—Had another slight sense of cold at the same hour this morning, but no heat or perspiration followed; strength and appetite improving; bowels regular; slept well.

27th.—At the same time this morning was sensible of a feeling of lassitude, but no chilliness.

31st.—Feels quite well, and has expressed a desire to be discharged.

August 3d.—Continues well. Discharged to attend as an out patient.

10th.—Came to hospital during the hour of visit in a very severe cold stage, which had been on him for about half an hour. He complained of intense pain of head, as if some one were beating it with a hammer, accompanied with pulsation. The tremors were violent and universal; the surface rather cold, the extremities very cold; pulse 140, and oppressed; heat under the tongue 97°; breathing hurried and oppressed, and when he attempts to take in a full inspiration, by desire, he finds it not only impossible, but makes much complaint of a pain in the left side of the chest, in the region of the heart. A vein was opened, and before four ounces of blood were drawn, the rigor diminished in violence, and the pain of head became relieved; after the loss of eight ounces, the head was quite free from pain and the tremors subsided; the heat of his extremities was restored, and a general warm glow was felt over the whole body. When eleven ounces of blood were abstracted, he was found to be free from complaint, and the arm was tied up. Heat under the tongue at this moment 107, and the pulse beat 126, and very full. The bleeding occupied five minutes. In about ten minutes after the bleeding, the headach became so intense that he entreated to lose more blood, and eight ounces were taken with complete and permanent relief to the head. This quantity was discharged in three minutes. His body was now universally warm, indeed rather hot; the additional blankets were removed, and he felt afterwards cool and comfortable. Pulse 120; feels drowsy.

11th.—In an hour after the second bleeding yesterday, the headache returned, but in a much slighter degree; it was completely relieved by the application of cold water. Passed a good night, but had a copious perspiration towards morning. Feels now quite well; has no pain, and says he does not feel weak. Appetite good. Had three stools last night, and one to-day.

12th.—Passed a good night. Feels quite well, and says he is stronger. Tongue clean and moist. Pulse 76, of good strength. Belly open from medicine taken last night.

17th.—Has continued to improve since last report on 12th. Has had no return of the disease, and is discharged to attend for a few days as an out patient.

Case XIII.—John Loyd, aged 20. Has been eleven months in the service, and was three times in hospital at Woolwich with intermittent fever.

July 27. 1827.—By account, he had regular paroxysms of tertian intermittent lately on the voyage from Woolwich to Leith Fort. When he presented himself at the hospital to-day, his countenance was much oppressed, and his gait tottering. Says he has had a rigor all night on guard, and that he has felt cold for the last twenty-four hours. Complains much of headache, pain in the loins, general uneasiness, and difficulty in breathing. Heat under the tongue 100°; thermometer held in the hand 78°. The feet and legs also cold to the touch. Pulse scarcely to be felt, and not to be counted. He appears to be between the cold and the hot stage, the cold predominating, with so much congestion about the heart and larger vessels that reaction is prevented. Upon this

view of the case, a vein was opened, and although a large orifice was made, the blood only trickled down the arm, which was proved to depend on a want of sufficient force in the circulation; for when the orifice was pressed by the finger, so as to stop the flow of blood for a moment, allowing time for the vein to fill, a stream took place on the removal of the pressure; this was repeated a number of times, and with the same effect. The blood itself was thick, and coagulated imperfectly; it looked of different tints. Twelve ounces of blood were taken in fifteen minutes. The patient felt somewhat relieved after the bleeding, but complained of debility.

28th.—Became very hot and restless in an hour after the bleeding, but has had no perspiration. Passed a bad restless night, with headache and sore throat. Pulse 106, distinct and easily compressible. Skin hot. Thermometer placed under the tongue 102°; held in the hand 99°. On looking into the throat, there appears to be no inflammation. Breathing almost natural. Is affected with slight startings. A vein was opened in the arm, and although a large orifice was made, the blood only trickled, and presented the same black appearance as yesterday; as soon as four ounces were taken, a small jet took place, which increased at last to a tolerable stream. The arm was tied up on the approach of syncope, when eight ounces were abstracted. Expressed himself much relieved by the bleeding, particularly with regard to his head. Heat under the tongue after the bleeding 100°. Feels disposed to sleep.

Vespere. Complains of headach, heat of skin, and considerable thirst. Pulse 100, and strong. Blood drawn in the morning has not separated any serum; it is like treacle, and, together with that taken at the last bleeding, has all the appearance of what the old writers called "dissolved putrid blood."

29th.—Feels better in every respect. Slept well. No stool since yesterday morning. Pulse 100, less oppressed. Heat natural. Tongue rather foul and dry at the tip.

30th.—Continues to feel better, and to sleep well, but complains of weakness. Three stools. Pulse 92, of good strength; great thirst.

31st.—Complains of general uneasiness, sore throat and difficult deglutition; also of a pain in the epigastric region. He attributes these symptoms to the solution of the tartrate of antimony, which he has been taking for two or three days. The throat looks inflamed, the fauces and uvulæ being covered with a thick viscid exudation. Tongue dry, red round the edges and at the tip. Skin hot. Pulse 100. Thirst considerable. Bowels opened twice. Abdomen to be fomented. Antimony to be discontinued. A small dose of castor oil. Blister to the throat.

August 1st.—Passed a bad night; but the restlessness and the troublesome symptoms described yesterday began to decline towards morning, and he now feels considerably better. Tongue moist, but discoloured and dry in the centre, and in a small angular space at the tip. Skin hot and dry; pulse 98; three stools; blister rose well, and relieved the throat.

3d.—Slept well the last two nights; feels better in every respect; but complains of his tongue, which is fissured; it is cleaner and quite moist; thirst diminished; skin rather warm; one stool yesterday, and two to-day; pulse 80, of good strength; appetite improving.

5th.—Continues to improve.

7th.—Convalescent; and able to sit up. He continued afterwards to make a good recovery.

Case XIV.—John Boyd, aged 23. Was lately quartered at Woolwich, during a period of nine months, when intermittent prevailed, but he escaped the disease. Was seized last night, October 25. 1827, about twelve o'clock after retiring to bed, with cold shivering, giddiness, and difficulty of breathing, which continued for three hours with great severity, and then became mitigated, but did not entirely cease. In a few hours afterwards the rigors with the other symptoms recurred with increased violence, and continued so until I visited him at ten o'clock on the morning of the 20th October. He had no sleep

during the night. Was still shivering violently, and walked to the hospital with great difficulty from extreme weakness, and his gait was like that of a drunken man. After he was placed in one of the wards, the extremities were found to be cold; heat under the tongue 95°. Respirations 38, and performed with an effort. Pulse scarcely to be felt at the wrist, beating 65. He complains of an insupportable sense of coldness; of excruciating headache between the temples; difficulty of breathing; oppression at the chest, and debility. A vein was quickly opened; the blood did not flow readily at first, although the orifice in the vein was well made. When about five ounces of blood were abstracted, the respiration was performed with more ease, the pain of head was less, and the tremors were slighter. The blood now began to flow in a better stream, and when ten ounces were taken the patient declared he had no complaint, but giddiness and a sense of faintness. Hitherto he had been in the sitting posture, but was now placed in the recumbent, and the arm was tied up. The space of time occupied by the bleeding was two minutes and a half. The pulse was much stronger, beating 96. The thermometer placed under the tongue rose to 99. In the course of five minutes afterwards, a slight rigor supervened, with a return of the headach; and as the pulse was strong and firm, the blood was again allowed to flow from the same orifice to the extent of six ounces, with complete and permanent relief. He now felt comfortable, to use his own expression. Pulse 80, of good strength. Had a drink of warm gruel, and in a short time a slight moisture appeared on the surface of the body.

Vespere.—The patient was found sitting up dressed. Said he did not feel weak, and that he had been very comfortable all day since the bleeding. Surface moist. Tongue moist. Pulse 80, strong.

27th.—Passed a good night. Had some perspiration. A laxative powder which he took last night operated five times. The report on the 4th November states, that he feels quite well, and as strong as ever he did. Appetite good. Sleeps soundly. Bowels regular without medicine, and he has had no return of the disease since the bleeding, and on that day he was discharged the hospital.

Case XV.—John Rose, aged 22. Has always been healthy till he had the ague at Woolwich, for which he was in hospital twice, three weeks the first time, and a month the second; but says he has since scarcely ever been free from pain of head and loins. Two days ago had a severe attack of intermittent, and another this morning, 18th October 1827. He presented himself at the hospital during the hot stage. Belly constipated. Tongue foul.

19th.—Bowels opened several times from a laxative powder which he got last night. Feels better.

22d.—Bowels have been kept open by gentle laxatives. Sleeps well at night. Appetite improved. No return of the paroxysms. Discharged to attend as an out patient.

Readmitted on the 24th October. States that he was seized with a severe paroxysm this morning at six o'clock. At ten he presented himself at the hospital in the hot stage, suffering much from headach, pain in the back, and hurried respiration. Pulse 130, full and strong. Bowels regular. Tongue foul.

26th.—Had an attack this morning at five. At 10 A. M. he was still in the hot stage.

29th.—The paroxysm came on between two and three o'clock this morning. At ten he was still in the cold fit; he complained of pain in the head and loins. The tremors were not violent. Tongue rather loaded, but moist. Pulse 64, weak and oppressed. Heat under the tongue 92°; in the hand 72°. A vein was now opened, and he was quite relieved before six ounces were abstracted, and the tremors ceased when twelve ounces were taken, which occupied three minutes of time. The thermometer was now again placed under the tongue, and the heat found to be 96°; in the hand 75°. There had been no application of heat, nor had any warm drink been given. There was a slight mois-

ture over the surface. Upon being asked if he felt weaker since the bleeding, replied, that he is "not aware of feeling weaker."

30th.—Was quite comfortable after the bleeding yesterday, so much so, that he dressed himself and sat up all the afternoon, and eat a good dinner. Slept well. Bowels open. Tongue clean. Pulse 64, and of good strength. Thinks that he feels rather weaker than he did yesterday afternoon, but says he has no complaint.

1st November.—Has had no return of the paroxysm. Says he feels quite comfortable. Appetite good. Bowels regular. Sleeps better at night than he has done for several months.

4th.—Continues to improve in health. Has had no return of the disease, and was discharged the hospital in the course of a week cured.

Case XVI.—Gunner James Anderson, aged 20. Has been four years a soldier. Served in the Mediterranean for eighteen months. Had several attacks of intermittent, for which he was taken into hospital in one of the Ionian Islands; and since his return to England had two different returns of the disease. He describes his sufferings to have been always very acute during each paroxysm. Has otherwise enjoyed good health all his life. Appears to have a good constitution, and, with the exception of a yellow tinge, looks healthy. He is stout, well made, and about five feet ten inches high. By trade a weaver. A native of Glasgow.

3d April 1828.—Presented himself this morning at the hospital, labouring under all the usual symptoms of inflammatory fever, and complaining much of pain in his head and loins. Thirst is urgent. Skin hot and dry. Pulse 130, full and hard. Hard cough. Stated that he had been attacked about day-light with severe cold shivering, which, after continuing for several hours, terminated in a state of heat and fever. In the course of a few hours after admission, perspiration came on, and the urgent symptoms gradually declined as usual.

4th.—Passed an indifferent night. Complains of cough, with which he says he has become affected since his arrival at this station on the 12th March last; that it becomes much worse as soon as he begins to shiver. After the paroxysm is over, a slight expectoration takes place, which relieves the cough till the next attack.

The paroxysm of yesterday was the fourth, with a day intervening between each. He is aware of the nature of the complaint, and says it is the same he had in the Ionian Islands and at Woolwich.

Continued in the same state, having a severe paroxysm every third day till the end of the month, when he complained of more than the usual sufferings. His skin became of a bright yellow colour, and he was relieved by vomiting a large quantity of bilious matter.

The attacks still continued; they have anticipated the usual time by several hours, so that the different gentlemen who went to the hospital to bleed him in the cold stage, were either too soon or too late, and no one was fortunate enough to drop in in time, till Mr Drever, one of my pupils, remained in the hospital all night, and he was then bled in the cold stage. The following account was written by that gentleman.

"I was called at half past one A. M. May 10th, to see Anderson, soon after the commencement of the cold sensations. At two o'clock, after the rigors had been violent for about a quarter of an hour, I proceeded to bleed him. The thermometer placed under the tongue stood at 95°. The pulse beat 130 and weak, so as to be counted with difficulty. A large opening was made in a vein, but the blood only trickled; being afraid that the opening had not been properly made, I tied up the opposite arm and made a good orifice in another vein, but the blood still only trickled; and as the rigors continued very violent, I gave him nearly a wine glassful of spirits; and in a minute or two, the blood spouted in a large stream, and thirty ounces were quickly evacuated, when vomiting and a tendency to syncope took place. The tremors had entirely ceased, and all the unpleasant sensations. The patient expressed, in strong terms, the ease which had so sud-

denly been produced. In five or six minutes after the arms were tied up, the tremors returned for a few minutes, and then entirely subsided. Pulse 100.

"I visited him again at the end of six hours, when he told me he had slept very comfortably. Pulse 70. Upon being asked to state the extent of the relief he experienced from the bleeding, he told me that there was a load taken from his breast and head, and no painful feeling was left."

At two regular periods since the bleeding, he was conscious of feeling heavy and sleepy, but had no tendency to rigor, or even to feel cold, although the weather has been exceedingly changeable, and for the most part cold, the wind easterly. He has had no kind of medicines but laxatives to keep the bowels comfortable.

Case XVII.—Gunner Robert Young, aged 42. Was in hospital for several months during the winter, complaining of pain in the chest, cough, and copious expectoration, together with emaciation, prostration of strength, and heavy night sweats. For four or five weeks, the expectoration was bloody, and amounted on an average to about three gills a-day. His pulse was never under 100. The sound of respiration on the right side of the chest was deficient, while it was puerile in many parts of the left lung, and there was no *râle* to be heard any where. Contrary to expectation, he became much better under the use of considerable doses of the acetate of lead; and counter-irritation produced by tartar-emetic ointment to the surface of the chest. When his recovery was considerably advanced, and in order to give him the best possible chance, he was sent on leave to his native place; and when there, was seized with intermittent fever, which induced him to return before his time had expired.

After having experienced many severe paroxysms, he was taken into hospital, and on Sunday the 18th May 1828, the following report was made:

Felt the cold fit coming on at half past twelve this forenoon. In a quarter of an hour the tremors were so violent as to shake the bed. From the commencement of the cold fit, he coughed incessantly, without expectoration, and complained of excessive coldness, together with pain in the head, chest, belly and back. Heat of the room 65°. Thermometer placed under the tongue 90°; held in the hand it fell to 76°. Pulse 75, and very weak. After the rigors had continued with violence for ten or twelve minutes, a vein was opened. The first cup, which was filled in five minutes, held twelve ounces; by the time it was half filled, the pain had vanished from the head and chest, the cough had ceased entirely. When the twelve ounces were taken, he said the pain had now left the back, and that a very warm, pleasant sensation was gradually spreading from his back over his bowels and breast. The second cup held between eight and nine ounces; it was filled in two minutes. The blood flowed with more force, but not in so large a stream. The tremors gradually subsided, and all unpleasant sensations disappeared before the arm was tied up. The breathing was easy and natural. Heat under the tongue 93°. Pulse 92, of tolerable strength. There was no sense of sickness, or tendency to syncope. He was again visited in twenty minutes, and found quite comfortable. On being asked if he felt weak, he replied, he did not, but that he did not know exactly how he might be if he were upon his legs. In the evening he continued quite well, but had a little heat of skin, which was found to be owing to the great number of blankets he still had upon him. Upon their removal the heat disappeared. As he had had free motions from his bowels through the course of the day, no medicine was ordered.

Tuesday 20th.—Had a paroxysm this morning, but it was slight, and was not attended with the cough, or the other severe symptoms described in the report of Sunday. The paroxysm was over before I reached the hospital, otherwise I would have bled him again in the cold stage.

Thursday 22d.—He had another paroxysm, after which the quinine was exhibited, which appeared now to have the effect of preventing a recurrence of the disease, although it had been exhibited in vain, and in much larger doses before the bleeding.

Case XVIII.—The following is the case of James Bennet, treated by Dr Alison in the clinical ward of the Royal Infirmary, which was the foundation of his lecture against bleeding in the cold stage, and whose objections and arguments were subsequently re-echoed in the Lancet of Saturday, April 7. 1827, in a communication signed "*Scotus.*"

James Bennet, aged 39, shoemaker, March 27.—Had severe rigors on Saturday 25th instant, accompanied by thirst, anorexia and pain of head, which continued for more than an hour; were then succeeded by heat of skin, vertigo, lassitude, increase of thirst, and pain of head. These symptoms continued five or six hours, and then gradually subsided during copious sweating. Had a similar paroxysm on the 26th, and also a less severe one this morning. Complains at present of slight pain below the left false ribs, somewhat increased by pressure or coughing. Pulse 60, full. Respiration natural. Skin cool. Tongue clean and moist. No thirst. Appetite pretty good. Bowels open. Urine said to be high coloured. Lips somewhat swollen, with a slight vesicular eruption around the mouth. Has taken purgative medicines, and also a little of the arsenical solution since yesterday. Took an opiate draught this morning when the rigors commenced, after which they continued only a few minutes. Has since had no pain of head; little heat of skin; less thirst, and no sweating.

Had the intermittent fever more or less constantly for nine months whilst in Spain, fourteen years ago. Has recently returned from the West Indies, where he resided for the last six years. Lives in a house where several persons have been ill of continued fever.

Fowler's arsenical solution, ℥ i.
Water, - ℥ vi. Mix. Let him have ℥ fs every sixth hour.

28th.—Shivering commenced this morning at ten, which abated somewhat after taking the draught. At half-past ten was still shivering, less violently; with pain of back and head. Pulse 72, rather small. Sixteen ounces of blood were taken, slightly sizy, crassamentum not contracted. *The pains abated and the shiverings immediately ceased.* Has headache now, and giddiness. Pulse 72, full, soft; tongue furred, moist. No sweating since the shivering. Pain of left side of abdomen only felt on coughing. No pain of back.

Continue the arsenical solution.
Repeat the anodyne draught.

29th.—Began to sweat at two, which lasted several hours. Had griping and tenesmus with headache at night, which abated after the operation of a dose of castor oil. No shivering to-day. Four doses of the solution taken. Pulse 60. Tongue moist, slightly furred. Complains of weakness.

Continue all the medicines. Let him have lb. i. of beef tea, and one pint of porter.

30th.—Had a fit of rigors this morning about ten, and took his draught. The shivering was less violent, but lasted an hour. Pulse 80, full, soft. Heat was an hour ago 100°. Tongue slightly furred, with thirst. Complains of headache, pain of back and left side of abdomen. Bowels confined.

Let him have one oz. of castor oil; a saline draught now and then. Continue the others.

31st.—Much sweating yesterday after having had an enema at night without effect. No rigors to-day. Pulse 68. Tongue whitish.

Let him have ℥ ij. of Infusion. senna, with ℥ ij. of sulphate of magnesia.
Repeat the arsenical solution now every fourth hour.

April 1st.—Bowels freely opened. Rigors commenced to-day at 10, but slightly. They have become more violent within these few minutes. Pulse 84, pretty full. Skin feels warm. Tongue rather dry. Has pain of left side of abdomen just now. Has just taken the anodyne draught.

Continue the arsenical solution. Give him a powder containing four grains of sulphate of quinine every six hours.

2d.—Shivering abated quickly after the opiate draught. Sweated much in the evening. Feels easy to-day. Left side of abdomen slightly tender. Bowels open. No nausea.

Repeat the powders of sulphate of quinine every fourth hour.

3d.—Four powders taken. No fit. Very little pain of side.

Continue the medicines.

4th.—Five powders taken. No fit. Two stools. Appetite good.

To have four ounces of steak to-day, and daily.

5th.—Had a very slight fit of rigors at four yesterday, succeeded by heat of skin; full, quick pulse, and sweating in the night; little headache, and no pain of side. Pulse and tongue natural. Bowels open.

Continue.

6th.—Shiverings have begun within these few minutes. Pulse 96. Has taken his draught. Hand rather cold. Bowels open.

Continue.

7th.—Shivering lasted an hour yesterday. Began to sweat soon after, and sweated all night. Complains of pain in the left lumbar region, with some tenderness; no distinct hardness.

8th.—Rigors commenced this morning a little after 9 o'clock, and lasted an hour, though he took an opiate draught containing forty drops of tincture of opium. Has sweated some already. Pulse 100, full. Complains of headache and pain of left side of abdomen. Tongue rather dry, with some thirst. No stool.

Let him take a bolus of compound powder of jalap directly. Apply the cupping glasses to the pained part of his left side, and abstract six ounces of blood. Continue the powders of sulphate of quinine. Let him have drink, acidulated with lemon juice, without syrup, *ad libitum.*

9th.—Side easier since the cupping. Bolus operated. No headache to-day. Appetite good. Much sweating in the night.

Continue. Let him take a mixture containing ℥ i. of sulphuric acid with water.—Additional bread.

16th.—Had some vomiting this morning, succeeded by rigors about 8 o'clock, which lasted three quarters of an hour, but were not violent. Pulse 64. Heat 99°. Sweated a little. No headache or pain of side. Bowels slow.

Let him take ℥ ij. of infusion of senna, with ʒ ii. of sulphate of magnesia directly. Continue the others.

17th.—Had a second fit of rigors yesterday at 2 o'clock, which lasted long, although he took forty drops of tincture of opium. Sweated all night. Is free from complaint to-day, but weak. Bowels open.

Continue the powders of sulphate of quinine every third hour.

18th.—No return of shivering. Has a little pain of left side of abdomen, on motion or coughing. Pulse natural. Appetite good. One scanty stool.

Give him directly a powder containing gr xv. of rhubarb, and gr iii. of calomel.

27th.—Complains of feeling weakness of loins.

Apply a warm plaster to the lumbar region.

29th.—Bowels slow, otherwise well.

Let him have immediately a cathartic draught. Continue the others.

30th.—Has complained of nausea and weakness, but without any shivering. Pulse natural. Tongue whitish.

Let him take ℥ i. of a mixture containing ʒ ij. of ammoniated tincture of valerian, in ℥ vi. of mint water.—Continue the others.

May 1st.—Feeling of nausea and headache abated. Bowels regular.

Let him have one ounce of bark, also a warm plaster for the loins. Dismissed cured.

Second attack.

Admitted 25th May.—On the morning of 17th instant, was taken ill with headache, languor, and pain of back, succeeded by slight rigor, which continued for about a quarter of an hour, when it was followed by heat and sweating. Has had an interval of seven days without a return of paroxysm, which re-appeared on the 24th with increased severity, the rigor having been much more violent,

and of longer duration, accompanied with much nausea, excruciating headache, and those various symptoms which characterise the invasion of intermittent fever, under an aggravated form. Has had this morning, previous to admission, another paroxysm, which was an hour earlier in the period of its accession, and continued, including its three stages, for about six hours, during the first of which he had much vomiting. Complains most at present of headache, prostration of strength, general lassitude, and soreness of limbs. Has no pectoral nor abdominal symptoms; thirst is urgent; no anorexia; pulse 66, full, but soft; respirations 26 in the minute; tongue furred, but moist; bowels open; skin warm, rather pungent, and bathed in perspiration; face swollen; urine copious. Has been lately a patient in this clinical ward, afflicted with his present complaint, of which he was dismissed cured, on the 30th ultimo. The history of the present case derives much additional interest from the circumstance of two of his children having been also recently attacked with ague, for which one of them is now a patient in the Infirmary.

Let him have gr iij. of sulphate of quinine three times a-day, and two colocynth pills to-night.

26th.—Three stools from the pills. No shivering since admission. Headache still severe. Pulse 66, full. Pain of back and limbs preventing sleep. No pain of side or of abdomen.

Apply the cupping instrument to his temples, and abstract eight ounces of blood.—Continue the powders.

27th.—Headache relieved by cupping. Had a severe shivering fit this morning, reported to have lasted two hours, and is now sweating profusely. Pulse 66, full. No pain of abdomen or side. Two stools.

Let him have the powders of sulphate of quinine every third hour. Also an anodyne draught, with forty drops of tincture of opium, at the commencement of the paroxysm.

28th.—Pulse 66. Feels chilly. Bowels open.

Continue powders of sulphate of quinine.

29th.—Had a shivering fit lasting an hour and a half, commencing at nine. Has sweated much. Pulse 66, full. Complains of general soreness. Bowels open. Had nausea, no vomiting.

Let him have an effervescing saline draught every hour. Continue the powders.

30th.—Pulse natural. No pain to-day. Appetite pretty good. Five powders taken.

To have four ounces of steak and a pint of porter.

31st.—Took six grains of sulphate of quinine this morning at half past eight. Shivering came on at nine, and lasted about half an hour, but was much slighter. No sweating since. No headache, but complains of nausea and giddiness. Bowels open.

Let him have the effervescing saline draught now and then. Continue the powders. To have ordinary diet to-day, but the steak to be repeated to-morrow.

June 2d.—Took a double dose of quinine again this morning at half past eight. Has had a little chilliness; no rigor.

Continue the powders.

3d.—Began to shiver directly after visit yesterday. Took five grains of sulphate of quinine, after which it went off. Sweated much. Has complained much of *tinnitus aurium* and giddiness since yesterday afternoon. Two stools from pills taken last night. Pulse 68, full. Tongue whitish.

Repeat the powders every fourth hour; and the laxative pills at bed time.

4th.—No shivering to-day. Much less *tinnitus*. Bowels open.

Continue the powders and pills.

5th.—Five powders taken. No vertigo or *tinnitus*. Appetite good.

To have additional allowance of bread.

6th.—Had chilliness; no rigors. Six powders taken. Bowels slow. No pain.

Let him take two colocynth pills immediately. Continue the powders.

7th.—No return of shivering. Complains only of pain of back.

Apply a warm plaster to the lumbar region. Continue the medicines.

8th.—Bowels slow. Feels drowsy to-day. No shivering.

Let him have the colocynth pills. Continue powders.

13th.—Bowels slow.

Let him take a cathartic draught.

15th.—Two laxative pills at bed-time.

17th.—Inflammation of eyes, particularly of right, with adhesion of eyelids in morning. No headache.

Let him have ʒ i. of compound powder of jalap immediately. To bathe his eyes frequently with tepid water, and to apply simple ointment to the edges of the eyelids.

18th.—More inflammation of right eye.

Apply the cupping instrument to his temples. Repeat the powders of sulphate of quinine three times a-day.

20th.—Eyes still sore.

Apply eight leeches round the eyes.

21st.—Two leeches only fixed. Bowels confined. Inflammation of eyes somewhat abated.

Repeat the leeches and purgative draught.

22d.—Leeches bled well. Eyes less painful. Still inflamed, with discharge of tears.

Dissolve gr xv. of the acetate of lead, in ℥ viij. of water, for a collyrium.

24th.—Both eyes somewhat inflamed, with impatience of light, and dimness of sight.

Abstract from the arm ℥ x. of blood. Continue medicines.

25th.—Eyes better. Bowels open.

Continue the lotion for the eyes.

26th.—Still some pain of eye-balls; less inflammation, but has some dimness of sight. No pain of head. Iris moves well.

Discontinue the powders of sulphate of quinine.

Apply a blister to the nape of neck.

30th.—Still some dimness of sight.

Let him have ʒ i. of simple ointment.

Dismissed cured.

Case XIX.—A. B. a carpenter in Leith, had had a great many severe attacks of intermittent, which weakened him so much that he was almost entirely confined to bed. He had taken a great many remedies, but the disease increased in severity. Several of my pupils watched this patient in order to bleed him in the cold stage; at length the rigor came on, and blood was drawn to the amount of sixteen or seventeen ounces, stopping the paroxysm. He experienced the same sudden relief that all the others had done from pain in head and loins, great oppression at the præcordia, dreadful sensation of coldness. This man, however, had two returns of the disease, which were owing to constant perspirations, which he encouraged, and also from allowing his bowels to get very much out of order. After a few doses of laxative medicine, and insisting on his avoiding the perspirations, he had no return of the disease, and soon recovered his ordinary state of health without any other means.

Case XX.—James Donachie, æt. 35, pale and emaciated, applied at the Dispensary on the 10th May 1828. States that he was at work in Lincolnshire ast harvest, where he became affected with a quotidian intermittent, which contin ed to recur about five, six, or seven o'clock in the evening, till February last, except during his stay in the York Infirmary, and a short time afterwards. He became a patient in the Infirmary of Edinburgh, in the clinical ward.

He further states, that whilst there, the symptoms ran so high that he was bled in the hot stage, but without relief. He remained in the hospital four weeks, was treated with bark and discharged; but he was affected as severely as ever. Since about March 22. when he came out of the Infirmary, the fits have continued to attack him every evening at five, six, or seven o'clock, occasionally continuing until the morning. A considerable part of this time he was under the use of Fowler's solution, without the least relief. Mr Taylor, one of my pupils, bled him during the cold stage. Before the bleeding, his pulse was 63; the rigor was completely formed. Although the vein was properly opened, no blood came at first; it soon dropped down the side of the arm, and afterwards came in a jet, when the rigor instantly ceased, and the bleeding was stopped. One ounce and a half of blood was abstracted. He got a little calomel and rhubarb to keep his bowels open. His strength now increased rapidly, and he had no attack for six days, till the 16th May. During this interval he felt tolerably well, and only experienced a slight sense of chilliness and disposition to yawn, for a short time, instead of the regular paroxysm, and not every day, as before, but on alternate days, and at 1 P. M. instead of the evening. This last attack came on, as already mentioned, on Friday 16th May, while he was out taking a walk on the Castle Hill, during which he was exposed to a keen north-east wind, which prevailed at the time. He got home with great difficulty. He had another attack on Sunday 18th, which, together with the former one, he describes as having been attended with a less severe cold stage, but more intense hot and sweating stages, than he had experienced before. 19th, Complains of thirst, but no loss of appetite; surface pale; tongue white and moist; pulse 60, soft and compressible; bowels regular, has no uneasiness.

Tuesday 20th.—Had no fit, but only a disposition to stretch and yawn, with a slight coolness of the surface; in a few minutes afterwards his skin became hot, attended with moisture on the breast and on the inside of the fore arms; pulse 80, soft.

Wednesday 21st.—He had sweating yesterday afternoon after the visit; has no complaint to-day.

Thursday 22d.—No paroxysm, but experienced the yawning and stretching, followed by heat and sweating.

Saturday 24th.—Escaped, and had even no threatenings till

Wednesday 28th, when there was slight chilliness, succeeded by heat and sweating. He had another slight attack on Friday 30th, but both these attacks were again owing to exposing himself out of doors in cold, damp weather.

On June 2d, had a return of the stretching; yawning; heat; and sweating, which continued profuse all night; indeed every night he perspires profusely, which is not to be wondered at, when it is known that he slept with four other people in a low room, eleven feet by twelve. After this he had no paroxysm, and the only remedies which were given were the decoction of quassia, sulphuric acid, and gentle laxatives; and he went to work on 26th June, as a labourer, with restored health and strength.

Case XXI.—Francis Trail, æt. 26, presented himself at the Dispensary early in the beginning of May 1828, in a pale and very weak condition, with swollen features, when he gave the following account of himself: He is a native of Ireland, and went to work at the harvest in Lincolnshire in 1827; remained there about a fortnight; at that time was in the enjoyment of good health, and continued so till the beginning of last January, when he began to feel unwell at times, but still was able to continue at his work on the rail-road, near Dalkeith. About the end of February he was seized with violent shivering, which was succeeded by great heat, and terminated in profuse perspiration; the paroxysms have continued ever since in the tertian form, and he has been unfit to do any thing, his health and strength becoming very much impaired. He was bled early in the disease, in the hot stage, without any remission of his sufferings, and without preventing the accession of the regular paroxysms. The cold stage generally continued from half an hour to three quarters, and he experienced great

suffering, from pain in the head, and lumbar region, with sickness. On Sunday, 10th May, he was bled to 16 oz. during the cold stage. During the bleeding the rigors ceased, but afterwards a hot stage took place, accompanied with pain in the head and loins.

On Tuesday the 12th, as he felt light and easy, and better than he had done for a long time, he walked a few miles out of town to see some friends, and he had a paroxysm, but which was not so severe as on former occasions. On Thursday he had another paroxysm, which was slight, unattended by rigors. After this period he had no cold stage, instead of which, he felt languor, headache, sickness, and pain in the lumbar region, in a slight degree; he recovered his health and strength rapidly, and in about a fortnight from the time of the bleeding he had no complaint. He stated that his appetite was now good, his strength daily improving, and at the end of May he returned to his work cured.

Case XXII.—Dr Cambridge, 29th September 1827, had repeated attacks of intermittent fever at Ostend four weeks ago, at which place it was prevalent at the time. Since his arrival in Edinburgh, three weeks ago, he has had a daily paroxysm, and used the sulphate of quinine, without effect. His appearance is far from being emaciated, but he looks pale and weakly.

The rigor came on severely at nine this morning, accompanied by unsupportable pain of head, shooting from temple to temple, inability to take a full inspiration, with sense of tightness across the chest. The rigors continued for the space of three hours, and then ceased, but the sense of extreme coldness and other severe symptoms continued. I was called to see Dr Cambridge, and made my first visit at one o'clock, when his sufferings were still unmitigated. He still felt cold. His pulse was weak and oppressed, 130 in the minute; respiration 50; face pale, and features contracted; tongue loaded, but moist. A vein was opened; immediately after the blood began to flow, he expressed in strong terms his sense of the sudden relief he experienced; at the expiration of a minute he could dilate his lungs to the fullest extent. Eighteen ounces of blood were taken, which occupied three minutes of time; and before the arm was bound up, all his uneasiness had ceased; the painful sensation of cold changed to that of a pleasant glow of heat, and the surface of the body was covered by a gentle moisture. No debility followed, and he was able to walk through the room. A brisk laxative was ordered.

30th.—Had no heat of skin yesterday after the bleeding. His feelings were comfortable during the remainder of the day: he passed an excellent night, and felt quite well this morning up to the moment of attack. The paroxysm came on at eleven A. M., and although he shivered smartly, yet he distinctly declared that he was quite free from the head symptoms, and all the other very painful feelings, which had distressed him on former occasions, excepting the tightness and oppression at the chest. Respirations 36 in the minute. Pulse weak, and not to be counted. Mouth slightly ulcerated, and complains of a bad taste. Tongue loaded, brown in the centre, and rather dry. Had four large, dark coloured, and fetid evacuations since last night, which produced a burning sensation at the extremity of the rectum. A vein was opened, and blood was drawn, to the extent of ten ounces, which occupied four minutes of time; before five ounces were abstracted, he described, in poetical language, his relief, which was as sudden as it was perfect. The pulse was reduced in frequency, and became much stronger, and he said he was sensible of an increase of strength; indeed, he was able to walk through the room immediately without support. In about an hour after I took my leave, the rigors returned with considerable severity, but unattended by headache, and there was little oppression in the chest. He had some fever, and a sweating stage. The sulphate of quinine was again had recourse to, and he had only one other slight paroxysm. His health improved daily, and was soon perfectly re-established.

Case XXIII.—Dr Cambridge mentioned to me, that after reading my first paper on bleeding in the cold stage of intermittents, which he met with on the

Continent, he had an opportunity of saving the life of a clergyman, upon whom he tried the practice, with complete success. This gentleman's health was reduced to the lowest possible ebb, by repeated attacks of intermittent fever. He had tried bark in all its forms, and quassia and arsenic, without the least mitigation. Dr Cambridge bled him in the cold stage, and he had no return of the disease, and his health was quickly re-established. This circumstance I have Dr C.'s permission to mention, as well as the particulars of his own case.

I have been favoured with the following case of coma, occurring in the cold stage, treated successfully by bleeding, by Dr Henry Lucas of the Royal Artillery.

Case XXIV.—Gunner William Smith, 9th Battalion. Admitted, August 16. 1827. Is perfectly insensible; eyes fixed, pupil partially contractile; respiration slow and deep; pulse full and slow; skin cool, especially about the lower extremities. Is completely insensible to external stimuli. Was brought from one of the guard rooms, where he had been complaining of feeling ill. Had had attacks of ague. A vein was opened in the arm, and he recovered sense and motion on loosing six ounces of blood. He complained of cold, though by that time the skin was warmer. Twelve ounces of blood were taken. Warm bottles were applied to the feet; cold lotion to the head; and a turpentine enema. In the evening he was found sweating. Bowels not free. Cathartic mixture ordered.

17th.—Bowels moved once by the mixture. Pulse soft and full. Skin moist and warm. Tongue rather loaded.

Repeat cathartic mixture.

18th.—Had distinct rigors last night, succeeded by increased heat of surface, and sweating. He was discharged on the 24th, cured.

Cases XXV. and XXVI.

The following is the extract of a letter from Mr Brown, now assistant surgeon in the 52d Regiment, dated Jersey, 8th August 1827: "Since I had the pleasure of hearing you lecture, I have, in three instances, tried the effect of bleeding in the cold stage of intermittents, and twice, with complete success. The patients were invalids, sent from Gibraltar for change of climate. One had had ague for eighteen months previous to his coming under my care; and at the time he left the depôt for Chatham, seven weeks from his being in hospital, he had no recurrence of fever. In the third case I was not so successful; it was, I think, from the bungling manner I opened the vein, I couldn't get the blood to flow *."

Cases XXVII. XXVIII. XXIX. and XXX.

Cork, Marborough Street,
Wednesday, Nov. 14. 1827.

Sir,

The perusal of your paper upon the utility of blood-letting in the cold stage of intermittent fevers, induced me to resort to that remedy, in the only four cases of the disease which I have met with since. The disease is of comparatively rare occurrence in this city, and never assumes a very aggravated form. Three of the cases I allude to were stout labouring men; the fourth was a delicate girl about twelve years of age. None of them presented very dangerous symptoms. The most distressing symptom was severe pain in the head, which was generally most intense during the cold fit. The loss of blood so far from causing collapse, or adding in any degree to the feeling of debility which existed, seemed to produce quite an opposite effect. The patients expressed themselves immediately relieved, a gentle perspiration ensued, and they appeared as if revived by the influence of a generous cordial. The bleeding, however, did not

* I have already shewn how difficult it is to open a vein during a rigor, from the commotion in which the body is thrown.

effect a cure, but the subsequent attacks were infinitely more mild, and yielded in a short time to the exhibition of the arseniate of potass.

The beneficial effects of this practice fully answered the expectations which you announce; and I have no hesitation in saying, as far as I can judge from limited experience, that we are indebted to your sagacity for a bold and unusually successful innovation in the treatment of a disease, which has constantly baffled our best directed efforts. You will excuse this brief communication, but I am aware that no reward is more grateful to a physician, than the assurance that his suggestions have received and merited the approval of his brethren.

I am, SIR,

With much respect,

Your obedient Servant,

To Dr. Mackintosh, M.D. (Signed) D. B. BULLEN, M.D.

SIR,—In consequence of having read, with great interest, your valuable paper upon the subject of bleeding in the cold stage of intermittent fever, which was published in the Edinburgh Medical and Surgical Journal for April last, I resolved to adopt your plan of treatment, in the first cases of ague which should occur to me. Ague has not for many years been endemic in this neighbourhood, so that the opportunities I may have of further trials of your treatment will probably not be numerous. The results of the two cases, of which I take the liberty of sending you an account, are very favourable. They occurred to me in my practice as physician to the General Infirmary here. With a strong conviction that future experience will confirm the correctness of your views and practice, and with feelings of admiration and esteem for an individual, who has improved the practice of medicine, by a disregard to long established prejudices, and erroneous doctrines, I remain, SIR,

Your obedient Servant,

Worcester, July 27. 1827. JONAS MALDEN, M.D.

To Dr Mackintosh, M.D. Edinburgh.

Case XXXI.—May 5. 1827.—Priscilla Williams, æt. 30. Complains of pain in the head. Skin hot. Tongue furred. Pulse 120, small and rather hard. Pain in the epigastric region, with loss of appetite. Bowels confined. Has a severe rigor every other morning of half an hour's continuance, which is followed by a hot and sweating stage. Her complaints began with cold shivering, three weeks ago, in the neighbourhood of Oxford, where ague was prevailing.

Applicentur hirudines xii. regioni epigastricæ.

R. Extracti colocynth. co. gr. xv.
Hydrarg. submuriatis gr. iii.
Fiant pilulæ tres stat. sumendæ.

R. Liq. antimon. tart. ℳ. xx. Potassæ nitratis gr. x. Mist.
Salinæ ℥i. M. Sumat quartis horis.

6th.—Pain in the stomach relieved. Headache continues. Bowels freely opened. No rigor yesterday.

Let her be bled during the cold stage to-day.

7th.—Lost ten ounces of blood yesterday during the rigor, when she became rather faint. A hot and sweating stage succeeded. Bowels open. Tongue cleaner.

8th.—Pulse 80, and of moderate strength. Headache and pain in the stomach much better. The rigor came on this morning, during which she was bled to sixteen ounces, and a slight hot and sweating stage succeeded.

9th.—Another very short and slight rigor this morning.

10th.—Ague returned to-day, but bleeding cut short the cold stage, which was neither followed by heat or sweating.

13th.—Pulse 72. Tongue clean. Appetite good. Free from pain. Has had no ague since last report. Wishes to leave the hospital. Discharged.

27th.—I saw the husband of this woman, who told me his wife was quite well, and had no return of her disorder.

Case XXXII.—May 22. 1827. William Holland, æt. 24. Has pain in the head and limbs, with furred and dry tongue. Pulse 96, small. Bowels regular. Has severe rigors of an hour's duration every day, which are followed by the hot and sweating stages. He has great prostration of strength, and a sallow countenance, and is much emaciated. Illness began with a shivering ten weeks ago. He has for some time been wandering about the country, and sleeping in the open air at night.

R. Hydrarg. submuriatis gr. ix. Pulveris jalapæ gr. viii.
M. f. bolus stat. sumend.

23d.—Had a rigor yesterday which lasted an hour, and was succeeded by a hot stage and profuse sweating. The pulse in the rigor was 120 and very small. The bowels have been very freely opened; stools of a good colour. Headache continues.

Fiat venæsectio dum rigor adsit.

24th.—Was bled to fourteen ounces during the cold fit yesterday. Whilst the blood was flowing, the shivering diminished. The hot stage followed, but lasted a much shorter time than usual. The pulse was not perceptibly affected by the bleeding.

Sumat mistura cathartica ℥iſs pro re nata.

25th.—Is much improved in appearance. Pulse 80, soft. The rigor came on at the accustomed time yesterday, but the shivering was less violent. Venesection was repeated during the paroxysm. The blood flowed freely, and the rigor ceased immediately upon tying up the arm. The cold fit lasted twenty minutes. The pulse during the rigor was 120. No hot fit followed.

26th.—Had a slight tremor yesterday, which lasted an hour. The hot stage afterwards was scarcely perceptible. Bowels open. Tongue much improved. Pulse natural.

R. Sulphatis quininæ gr. ii. Infusi rosæ ℥i. M.
Sumat secundâ quâque horâ.

27th.—Had a short and slight shivering yesterday afternoon. No hot stage. Another at two o'clock A. M.

29th.—No return of the ague since last report. Pulse 72. Bowels regular. Tongue clean. He makes no complaint.

June 2d.—Continues well. From this time till the 14th he had no return of his complaint. He had regained flesh and a healthy appearance, and was discharged cured.

The practice of bleeding in the cold stage has also been successfully tried by Dr Haviland, the distinguished Professor of the practice of physic in the University of Cambridge, the result of which was communicated to me, with Dr Haviland's permission, by Dr W. H. Yates, formerly a most assiduous pupil of mine, and now of Dr Haviland. The following are extracts from Dr Yates's letter: "Dr Haviland tells me, that in consequence of your communication to the profession on the propriety of bleeding in the cold stage of fever, he was disposed to make trial of it, having, as you would expect, frequent opportunities in these low countries. His principal object was in the first place to ascertain how far it was practicable; for when he read the account it struck him that it was a practice quite consonant with his own views. He was always assured that in these cases there existed considerable congestion of the larger vessels, and that could a portion of their contents be *safely* removed, the general result would be good. He has since tried it in several cases with decidedly beneficial effects. But it is a practice which must not be employed indiscriminately, and which is more essentially beneficial in those cases in which there appears to be a disposition to inflammation of any organ. Under such circumstances, his plan is to wait the return of the next cold stage, and then to take blood from the arm as circumstances direct; and in no instance has it failed, and in no instance has he had reason to repent it. He is quite convinced that it is a very safe practice. But when the constitution is broken down, or the general health much impaired, from whatever cause,

we should be careful how we adopt such a practice, and it will not do in every case *. I distinctly asked Dr Haviland, if, in these cases, he had administered bark or quinine; he distinctly answered, certainly not, but that there were two cases in which he followed up the bleeding, after a lapse of time, by quinine, but in all the rest the bleeding was trusted to alone. In these two instances, it was given under particular circumstances. The Professor tried bloodletting in the tertian as well as the quartan ague, but he considers it of the greatest consequence in the latter, as being more likely to effect a radical cure of the disease. I thought you would be pleased at this communication, and I am sure, if you knew Dr Haviland, you would be delighted with him, and consider his opinions of great weight."

It affords me the highest degree of pleasure in communicating another extract from this letter, although it is rather doubtful how far I may be justified in so doing; but the practice of medicine, as taught at Cambridge, has been so often ridiculed, and particularly in a late paper on medical education in the Edinburgh Medical and Surgical Journal, by Dr Duncan junior, the former editor, that I think it only an act of justice. The communication is made to me by a gentleman well informed in every part of his profession, and an excellent pathologist for his standing, and one well qualified to judge of such matters. "I assure you I was agreeably surprised when I came to Cambridge. I expected to find Dr Haviland full of Galen and Aretæus and book learning, but with little practice; instead of which, he is a very clever, clear-headed man, of very extensive practice indeed, with very liberal notions; always happy to converse with those who apply to him; he hides nothing, for when he has been mistaken in his diagnosis and opinions, he does not hesitate to point it out, and to comment upon it, which is the sure road to greatness."

I shall only add, that it is much to be wished three-fourths of the professors of medicine in Great Britain and Ireland were compelled to study for two or three years under Dr Haviland, in order that they might learn, not only how to read Aretæus, but to imitate his candour, frankness and gentlemanly demeanour; and also that they might see the superior advantages which a teacher possesses, who "*enjoys an extensive practice,*" and who does not trust to the knowledge he has acquired in his closet from books. I sincerely hope to see Dr Haviland soon translated into a sphere where the influence of his talents as a teacher will be more extensively felt.

The following Cases and Dissections are extracted from the Work of M. Bailly.

Case I.—Pernicious intermittent fever, attended with coma and convulsions. Stay in the hospital from 2d July 1822 to the 4th in the evening. Autopsy; Arachnitis, Cephalitis, Gastro-Enteritis.

Benoit Simouelli, æt. 30 years, of a strong constitution, affected for some time with a tertian fever. He came to the hospital on the 2d July 1822.

3d, Had a slight febrile access, afterwards took ℥ij. of bark.

4th, Towards midday, he walked in the ward, felt very well, and laughed with the other patients. All of a sudden, he was seized with violent shivering, to which succeeded a very high fever, during which he had alternate flexion and

* Upon further experience, I feel persuaded that Dr Haviland will see cause to modify this opinion, for it is precisely in such cases that I have the highest opinion of the practice; because it will succeed when no other remedies will have the slightest effect; in proof of which, I may refer to the cases of Ward, to Mr Marshall's case, and to that of A. B. in the 27th vol. of the Edinburgh Medical Journal, as well as to the cases of David Lambert, Robert Young, Dr Cambridge, and his friend the clergyman at Ostend, William Holland, James Donachie and Francis Trail, communicated in this paper.

extension of the fore arms, and profound coma. He died in six hours after the commencement of the attack.

Dissection the following day at 2 o'clock P. M.—Vivid injection of the whole of the arachnoid; colour of the cineritious matter of the brain much deeper than natural, approaching a dark reddish grey; a little water in the ventricles. No false membrane on the arachnoid. Great inflammation of the stomach, especially towards its great curvature, which was every where of a deep, generally diffused red. Many worms in the small intestines, which presented also inflamed portions, especially where the ascarides had collected.

Case III.—Stay in the hospital from the 2d August to the 5th in the evening. Autopsy; Arachnitis, Slight Gastro-Enteritis.

Pierre Donati, æt. 28, of a good constitution, was brought to the Hospital of Saint Esprit on the 2d August 1822.

Towards an hour and a half after midday, he was seized with an accession of fever, which commenced by excessive coldness, followed by intense heat, and stupor. He lay upon his back, with his eyes half open. He awoke when any one spoke to him, and fell again into the same state of coma. His pulse was frequent and strong; the skin burning. In the night copious sweating appeared, the intellectual faculties returned, and in the morning he was in a state to answer concerning his health. Took several ounces of bark.

3d, The fever returned half an hour after midday. Commenced with a very violent coldness, followed by heat, and stupor; but nevertheless he always awoke when any one called him, and he opened his eyes. The fore arms were bent upon the arms, and could not be extended; the teeth were clenched, which prevented the state of the tongue from being seen. Sensibility of the skin diminished. He lies upon his back. There is no pain upon pressing the belly. At half past 2 o'clock, general perspiration, but not so abundant as the first. In the evening, return of sentiment and intelligence. Cessation of contraction of the arms. But the ideas are less clear. Other doses of bark.

4th, The morning of the third day after his arrival, at half past 7 o'clock; the pulse frequent; stupidity; together with a drunken appearance. At 11 o'clock, a return of the cold, which was less intense, and of shorter duration; fever more violent; stupor more profound, coma, return of rigidity of the limbs; subsultus tendinum; he always lies upon his back; pulse full and strong. At half past 3 o'clock, sweat appeared, but less copious. After the sweat, he could not give an answer, and he was unconscious of his own state; cessation of the contractions.

5th, At 9 o'clock in the morning, a new accession of fever, the cold stage shorter, the hot more violent; contractions of fore arms; coma; difficult respiration; râle. Died at 10 o'clock in the evening.

Dissection 12 hours after death.—Lively inflammation of the whole of the arachnoid; serosity between the circumvolutions; engorgement of the vessels running on them; injection of the vessels of the lyra. The brain being raised there escaped half a pound of blood. Some points of a red colour in the stomach and intestines; liver gorged with blood; spleen voluminous and easily torn. No morbid appearance in the chest.

Case IV.—Pernicious intermittent fever, with coma, and jaundice. Stay at the hospital from the 24th August to the 25th. Autopsy; Cephalitis, Gastro-Enteritis, Splenitis.

François Lauretti, shoemaker, æt. 60, of a lean constitution, fell sick on the 17th August 1822. He had the fever every day, beginning with shivering, and terminating in the night by sweating. At the same time he was constipated, and had a pain in the epigastrium. Was brought to the Hospital of Saint Esprit on the 24th August. In the evening, the surface of his whole body was of a deep yellow citron colour; said this colour appeared during the last paroxysm; extremities cold, while he had a feeling of internal heat; tongue red and dry; pulse 108, like a thread. He had still so much recollection, that he

smiled on seeing us approach him, for we had already spoken to him when he was brought to the hospital, and before he was yet put to bed. He complained of nothing, appeared quite tranquil, and replied perfectly to all that we asked him.

25th.—In the morning, coma; immobility; lies upon the back; insensibility of the extremities, when they are pinched; but when pressure is applied to the region of the stomach, he shows signs of suffering. Yellowness continues. Pulse insensible at the fore arm, but in the leg it is 122. He took several spoonfuls of bark during this access, which he vomited; and died this same morning at 10 o'clock.

Dissection.—The body was of a lemon yellow colour. On opening the head, the *dura mater* was tinged as yellow as the skin; by repeated washing this tint could in part be removed; but on holding it to the light, the diminution of colour was scarcely perceptible; injection of the arachnoid; cortical substance of a deep colour; yellowish serosity between the convolutions: On slicing the brain, a number of red points were seen; a little water in the ventricles; the cerebellum natural; the lungs healthy; the cavities of the heart appeared to us larger than usual; in the right ventricle, was a clot entirely formed of albumen, as yellow in colour as that of the skin and *dura mater*. The belly, before being opened, was concave, and resting on the vertebral column; the stomach contracted on itself; it was everywhere of the colour of lees of wine: Although it was well washed, there adhered to its surface a thick mucus, similar to the tenacious expectoration of patients labouring under pulmonary catarrh. The smaller curvature, and a portion of the greater, presented that kind of eruption described at No. 30. When examined with a lens, it offered nothing more remarkable than to the naked eye, only instead of appearing to consist of small perfectly round elevations, and entirely separated from each other, they communicated by their bases. The redness of the stomach was less lively towards the *pylorus*, but it began again immediately at the duodenum, where it was very intense, and continued without interruption in the small and large intestines. The gall bladder was green externally, and filled with a black and thick bile; on pressing it strongly, only a few drops could be made to pass into the duodenum; the orifice of the *ductus choledochus* could not be distinguished, in the midst of the red, bloody and swollen folds of the mucous membrane of the *duodenum*, but by this means. The *ductus choledochus* being opened, presented nothing remarkable, except that its mouth was drawn into the *duodenum*, in consequence of the swelling of the inflamed tissue of the latter. The liver was of ordinary consistence; its colour was of the yellow of powdered bark: this is the only time I ever saw it in this state. The spleen was of the usual size, and quite diffluent.

Case V.—Pernicious intermittent fever, with coma and convulsive movements. Stay in the hospital from 6th July in the morning till the 7th in the evening. Autopsy; Arachnitis, Gastritis, Voluminous and diffluent spleen.

Jean Olivier, æt. 40, of a good constitution, was brought to the hospital on the 6th July. He was then without fever. In the evening the fever came on, preceded by shiverings, and followed by violent heat. The pulse was strong, 120; coma. He lies upon the back. Right arm immoveable. The left arm bent and carried towards the head. Sensibility every where. When an attempt is made to open the left eye, he appears to experience pain, and contracts the eyelids. Belly painful.

7th, in the morning.—Coma; lies upon the back; pulse strong, 108. In the evening. Coma, a clammy, fetid sweat; insensibility; immobility of the extremities; tongue dry. Died at seven o'clock.

Dissection.—Injection and thickening of the *arachnoid*; engorgement of the vessels which run on the convolutions, which are separated by watery exudations; the left *lyra* greatly injected; watery effusion at the base of the brain; phlegmonous eminences in the stomach, which were of a grey slate colour; invagination of the small intestines; spleen voluminous and pulpy.

Case VI.—Stay in the hospital from 3d July in the morning till that evening. Autopsy; Arachnitis, Gastro-Enteritis.

Vincent Orsini, æt. 60, came to the hospital the 3d July 1822, in the following state: Coma; pulse insensible; extremities cold; demi-flexion of the two thoracic extremities; when one wishes to extend them, a resistance is felt on the part of the flexor muscles. Left eye half shut, right eye open, pupils dilated, immoveable; tongue dry, lying in the very bottom of the mouth. He manifests pain when pressure is applied to the belly. He died the same evening.

Dissection of Case VI.—At the examination, vivid inflammation of the *arachnoid*, with great injection of its vessels. There escaped some serum, which was situated between the *dura mater* and *arachnoid*. A fibrous tumor of the size of a large nut, adhered to the dura mater, under the posterior angle of the parietals, and compressed the brain; although the injection of the *arachnoid* was very lively on both sides, it was, however, greatest on the left. Hydatid in the *choroid plexus*, the size of a small pea. The water that was between the *arachnoid* and *dura mater* was more abundant on the left side than on the right; brain pretty soft. General inflammation of the stomach; the S. of the *colon* was of a brownish red.

Case VII.—Stay in the hospital from the 19th June to the 20th, in the evening. Autopsy; Cephalitis, Putrilaginous softening of the liver, Enteritis.

Donato Fanti, a collier, æt. 50, was brought to the Hospital of Saint Esprit, in a comatose state, which continued even till death. The pulse was strong, beating 80 times in a minute; when the extremities were pinched the patient manifested pain; his skin was hot and moist; when they opened his eyes, he did not direct them to any object. It was impossible to see his tongue, because his jaws could not be separated sufficiently to see it. He only complained of pain when he was pressed in the region of the liver, and he did not appear to suffer any thing when pressed on any other part of the belly.

Dissection.—On opening the cranium several ounces of blood escaped; the arachnoid was strongly adherent to the dura mater by granulations resulting from old inflammation; the vessels of the brain were very much engorged; on slicing it drops of blood escaped from the divided vessels, which reappeared even after wiping. The liver was blackish; it appeared composed only of black blood, slightly coagulated, and of cellular bands, which alone offered some resistance to the finger: where this weak resistance was overcome, the liver was but of the consistence of thin jelly; for the blood appeared effused in its tissue, which resembled a pulpy mass. The intestines were inflamed in several points, and each inflamed portion corresponded to some knots of worms which were still alive. The lungs, the spleen, and the stomach were healthy.

Case IX.—Autopsy; Hepatitis, Pneumonitis, Peritonitis.

Joseph Totti, horsedoctor, of a sanguine bilious temperament, strong constitution, was accustomed to go down every year to marshy situations, to direct the workmen in seed time, or at the harvest, which occasioned obstructions in the spleen and liver. In 1811, in the time of harvest, being then aged 40, and working with great activity, he was affected with an intermittent fever, and which continued without using any remedies till the third paroxysm. At last he returned home, the fatigue of the journey procured for him a very short sleep. I saw him when he was affected with his fifth paroxysm. He was in the following state: Agitation; impossibility of finding a position which procured him rest; pain under the right false ribs, mounting to the top of the shoulder, and extending to the left hypochondrium; pains in the articulations; head heavy; tongue covered with a white crust, bitter taste in the mouth, vomiting, thirst; face livid; pulse irregular, neither soft nor hard; great difficulty in respiring; urine red and clouded. He got an injection to loosen the belly. He had little repose during the night, for the fever returned, preceded by a general coldness over all the extremities, and the pain in his side was aggravated.

6th day.—A frequent dry cough without expectoration. The emulsions had

eased the thirst. Had no appetite. The bitter taste in the mouth had disappeared. A pound of blood was drawn from the arm; the coagulum was almost soft; the serum was livid. At the return of the fever the cold only attacked the extremity of the feet.

7th day.—The pain, worse and worse; the difficulty of respiring still greater; frequent eructations; urine always the same. As the tongue was white, and as he had had no stools after the lavement, he took ℥i. of manna, which produced a bilious stool. In the night he had no sleep; delirium.

8th day.—The patient felt the least return of the fever; the pain of the right side became fixed in the hypochondriac region, and augmented in violence; the fomentations were found of no use in diminishing these pains, which every evening however presented a well-marked spontaneous remission; the brick-like sediment in the urine was more abundant. The patient having drank some soup, vomited a porraceous matter.

9th day.—Pulse soft, weak; prostration; meteorism; belly always constipated. The nourishment did not oppose the sinking of the strength; he took for drink a solution of nitre. He could not support the touch of the hand upon the right side of the belly. In the evening he became delirious. No sleep during the night; he raised himself frequently to make urine.

10th day.—Severe pain in both hypochondriac regions, so much so, that he could neither lie upon his back, nor upon either side; he sat up in the bed; the agitation produced sweating; he had no repose, but when he supported himself upon his elbows and knees, the back being turned upwards; but soon the cough destroyed this rest; passed a very painful night.

11th day.—Same state; urine clear and ready to putrify; lavements repeated; a blister applied to the right hypochondrium produced no relief. He could not even support the weight of the bed-clothes. Delirium in the night; after a short and agitated sleep, he became worse.

12th day.—Vague shiverings; pains in the extremities; pulse small; anxiety; diarrhœa; face downcast; a watchful night.

13th day.—Respiration slight, interrupted by sighs; very disagreeable night.

14th day, in the morning.—He could not rest himself in any position, and as he was raising himself to speak to his confessor, he expired.

Dissection.—The body offered nothing remarkable but a tension of the belly. In the abdomen, there was a sanious effusion mixed with a little blood. The liver was putrid and tuberculous; this affection commenced towards the convex part, extending itself on all sides, and descending towards the concave part; nevertheless, the greatest destruction was on the convexity; the rest was engorged and inflamed; its volume was natural. The gall bladder contained a little thin clear bile, not viscid. The inferior face of the diaphragm was erysipelatous; the stomach and small intestines were full of water; the spleen double the ordinary size, and of a black colour; the exterior surface of the right lung was covered with a white crust, the inferior part adhered to the *pleura costalis.*

Case X.—Stay in the hospital from the 8th of July to the 10th.—Autopsy; Arachnitis, Enteritis, Splenitis.

Dominique de Marco, æt. 30, of a good constitution, was affected with a simple tertian fever since the 24th June 1822. On the evening of the 7th July, he was seized, according to the report of his parents, with an accession of the pernicious, comatose intermittent. He arrived at the hospital on the morning of the 8th July, and he was in the following state: Coma; decubitus on the back; face red; fore arms bent and contracted; pulse 112; convulsive trembling of the fingers; legs stretched and immoveable; sensibility every where. They made him swallow three ounces of bark in six hours.

At 2 o'clock.—Pulse 100; sinapisms to the feet.

9th, in the morning.—He is in a sweat; remission of the fever; pulse 88; a watchful coma: he hears but does not answer, although he looks; two hours later, pulse 92, very full; several ounces of bark.

Evening.—Pulse full, strong, 96; profound coma; resisting stiffness of the right arm; he cannot shew his tongue; skin hot, and always moist with sweat.

To make him swallow the bark, it was necessary to pinch his nose, and hold his mouth open with a key; afterwards water was poured in, which he kept in his mouth, and finished by rejecting it. He has taken seven ounces of bark through the course of the day.

10th, in the morning.—Pulse 140, strong and full; coma; flaccidity; general immobility; mouth open; blood was taken from the jugular; respiration stertorous. Died towards midday.

Dissection.—Injection of all the vessels of the *arachnoid*, even to the very smallest ramifications, and on both sides; but on the right side, and upon the anterior lobe, it was of an intense red, without any distinction of vessels; when it was torn away from the convulutions the *pia mater* was also removed; it adhered so intimately to the *arachnoid*, as to resemble one membrane, red, very thick, and in the tissue of which, blood was effused, which appeared immediately to coagulate: little water in the ventricles; the brain of the ordinary consistence: when it was cut, there appeared a great number of red points, which immediately became the seat of large drops of blood; the *arachnoid* of the *cerebellum* was also highly injected, the consistence of that organ was natural. Stomach grey, externally, contracted, slightly inflamed; small intestines presented two invaginations; a portion of this intestine white, transparent, distended with gas; the rest grey and contracted: in three places all the circumference of the tube is red, both within and without, occupying the space of three inches in length; all the large intestine is white, &c. &c. Liver gorged with blood; spleen weighed between two and three pounds, and reduced into a grey, pulpy state.

Case XI.—Stay in the hospital from 6th July to 7th in the evening. Autopsy; Arachnitis, Gastro-Enteritis, Splenitis.

Paul Tossini, æt. 30, of a good constitution, was taken on the morning of the 29th June with a fever, which commenced with heat, and which returned every day until the 6th July, when he arrived at the hospital. He had had thirst, bloody stools, tenesmus, enlarged spleen; and he had taken cooling drinks and a purgative. He is now in the following state: His appearance is stupid; somnolence rather than coma; general pain of head. The patient only appears to be drowsy, for he is easily awoke, and he understands sufficiently well what is said to him; decubitus on the back, the knees are drawn up, but he cannot extend the thighs, without experiencing pain; during his slumbers the right eye is partly open, the left shut; it is impossible to depress the lower jaw, without producing suffering, when the commissure of the lips is drawn a little more to the right than left; the tongue is dry, red, covered with a black crust, which extends from the point towards the middle, the breadth of which is not more than half an inch; the tongue is drawn a little to the right; at intervals, slight convulsive movements of the hands; pain of belly upon pressure; skin hot, dry; pulse 120. When the right arm is extended the flexor muscles contract, and the patient seems to suffer much pain; but when once extended it continues so.

In the night, bloody dejections, extremely fetid; declination of the paroxysm, which returned on the 7th in the morning; at seven o'clock the patient complained of cold. I did not see him till six o'clock in the evening, when the paroxysm was beginning to decline: the skin was hot and moist; the lips were encrusted; the pulse was not to be felt; respiration hurried; the two fore arms bent, when it was wished to extend them, above all the right, violent pain was produced; preservation of sensibility every where; sometimes the right eye a little open, the left being shut. He had several convulsive movements this morning and towards midday. He took kino before the accession at the moment when he already felt the cold. Increase of coma; died at half past seven o'clock in the evening.

Dissection.—General injection of the arachnoid, particularly that part which covers the cerebellum and the lateral part of the commencement of the spinal

marrow. The injection of the right side was a little more intense than that of the left, although it was otherwise as vivid as it is possible to imagine, for it was not a simple injection, which merely shews the smallest vessels. The arachnoid was of a deep red, as if all its tissue were penetrated with blood. The brain presented nothing remarkable. The intestines were injected in the same manner, from the œsophagus even to the anus; their whole thickness appeared to be impregnated with blood; they were not either thicker than natural, nor contracted; on the contrary, they were distended with flatus. Spleen weighed from eight to ten pounds; when it was put upon the table it became flat like a bladder half filled with water; its tissue was reduced to a pulp.

Case XIII.—Stay in the hospital from the 2d July to the 4th in the evening.

François Pompei, æt. 19, was seized on the 1st July 1822 with an accession of fever, in consequence of a sudden chill which he experienced, on entering a cool grotto when his body was covered with sweat. He was brought to the hospital on the 2d July at six o'clock in the evening. Before he arrived he had a considerable epistaxis. He was in the following state; profound coma, eyes widely opened, directed to the right, fixed; expression besotted; general immobility; decubitus on the back; insensibility of the extremities; when pinched, they were quite flexible. He did not answer the questions which were put to him; the direction of the eyes did not change even when one approached him. He manifested pain when his stomach was compressed; skin burning hot; a white œdematous swelling of the face; his parents said that this tumefaction had come on since the disease, for previously he had rather a thin face. This access continued until Wednesday morning the 3d July; he then took an ounce and an half of bark.

4th July, Thursday morning.—The paxoxysm returned, at the commencement of which, he could still give answers to the questions put to him, but the coma went on increasing, and with it all the symptoms above described; the pulse was strong, vibrating, full, beating 84; the same direction of the eyes to the right, the same immobility of these organs, and of the extremities; respiration short. Eight leeches to the ears; died at ten o'clock in the evening.

Dissection.—Several ounces of blood flowed from the nose in the dead-room; in cutting the scalp, more blood escaped; the whole might have weighed a pound. General engorgement of all the vessels which ramify upon the convolutions; the brain, still covered by the dura mater, gave a feeling which made us believe that there was a fluid in the interior, nevertheless there was only a little serosity in the ventricles; the substance of the brain was of the natural colour. All the intestinal tube, without any exception, presented, on opening the belly, a red appearance, which was owing to a general injection of all the vessels, even in their smallest ramifications. It would be difficult to inject so perfectly the vessels either of the intestines or of the mesentery, as they were in this body. The intestinal tube, although a little transparent, was penetrated with this congestion throughout its whole thickness; every thing indicated the first stage of a violent inflammation, that is to say, of a sanguineous congestion.

Case XV.—Stay in the hospital from the 23d August to the 24th in the morning.

Thomas Adami, æt. 20, was brought to the hospital on the 23d August 1822. He was delirious; they were obliged to secure him. After midday, the delirium subsided. A profound and intense coma succeeded; the pulse strong, hard, 85; the extremities were flexible, but motionless; decubitus upon the back; pupils immoveable; features swollen and intensely hot; general insensibility. Body covered with a clammy sweat. In the evening the respiration was more hurried, and very much embarrassed; pulse not to be felt; froth was discharged from the mouth; he was insensible even when his skin was pinched; died at one o'clock in the morning.

Dissection, eleven hours after death.—General inflammation of the *arach-*

noid, of which the very smallest vessels were injected ; no serosity ; the cortical substance was of a deep red, compared with that of a subject dead from a shivering fever, *(la fièvre algide,)* which we shall notice by and bye, &c. &c.

Case XVI.—Stay in the hospital from 23d July to 25th.

Antoine Turianne, æt. 12, of a good constitution, was brought to the hospital on the 23d July 1822 at four o'clock in the afternoon. He was in the following state : Commencement of stupor, his answers are slow, and not quite correct ; the questions put to him made him discontented and unhappy ; agitation ; he turns himself on all sides in his bed ; eyes open and stupid ; skin hot and dry. (Bled to 8 oz. ; lavement ; tisane.) In the evening increase of stupor, in consequence of the accession of another paroxysm, coma profound, eyes open, pupils contracted and immoveable ; the fore arms bent upon the arms, no pain on pressing the belly. Sinapisms to the feet.

24th July, in the morning.—Continuation of coma ; pulse 124 ; head intensely hot ; flexion of the fore arms ; it is impossible to depress the inferior jaw. Bled at the feet to 8 oz. In the evening, remission of the fever and of the convulsive symptoms ; skin slightly moist ; it was necessary to pinch his nose to make him swallow ℥ ij. of bark.

25th, in the morning.—Return of the fever, and the flexion of the fore arms ; continuation of the stupor ; does not reply to questions ; insensibility of the skin of the legs, that of the arms sensible ; head intensely hot ; decubitus on the back ; eyes open. Boiling water applied twice to the feet ; the patient did not feel it very acutely. Pediluvium during six minutes ; snow applied to the head ; the pulse fell to 82. Return of intelligence ; he swallowed voluntarily the bark ; but a little afterwards, violent agitation of all the body came on : the inferior extremities, which from the commencement were cold, were neither heated by the bath, nor inflamed by the application of boiling water and sinapisms. Of the four ounces of bark, which they made him take, he vomited more than two ; neither could he retain the bark injections which were exhibited. He remained in this state till 6 o'clock in the evening : the coma returned, and he died at 7 o'clock.

Dissection.—A very vivid injection of all the *arachnoid ;* between its folds there was a membrane produced by the coagulation of effused blood ; much serum between the convolutions, and at the base of the cranium ; the cortical substance very red. The stomach natural ; the small intestines contained a prodigious collection of worms ; the inflammation was sufficiently intense in this part. The colon was contracted, its walls very thick, and the internal membrane much inflamed, of a dark red colour.

Case XXX.—Stay in the hospital from the 21st till the evening of 22d of September.

Joseph Maoloney, æt. about 60, came to the hospital on the 21st Sept. 1822. He had been sick for five days. His answers were so confused, it was impossible to find out what had been his previous state, further than that he said, he had vomited some bitter stuff, that he was tormented by thirst, that he had suffered great distress, and had pains in the epigastrium. In the evening, tongue dry, vividly red round the edges ; constipation, nausea without vomiting, heat natural over the extremities and the thorax ; a burning heat in the epigastrium ; anguish ; severe pain in the stomach under pressure ; pulse small, frequent ; lavement of barley water—gum-water—fomentations to the belly. During the night, vomiting, and had a stool.

22d, in the morning.—Pulse more expanded ; the ideas still confused, diminution of agitation, heat natural every where ; tongue dry, thirst. Same treatment. About half-past 9 o'clock he had vomited the tisane with mucus, bile, and several lumbrici. About half-past 11 o'clock, stupidity, pains in the epigastrium increased. At 3 o'clock P. M. lancinating pain of belly ; pulse small, frequent ; extremities cold, and bathed in cold, clammy perspiration ; inferior

extremities bent up upon the belly. Bled from the arm, died in half an hour afterwards.

Dissection.—Injection of the vessels which ramify upon the convolutions of the brain; substance of the brain presented an infinite number of small drops of blood; three or four ounces of water at the base of the cranium; lungs natural, crepitating. In the belly there were fifteen or sixteen ounces of dark blood, running like oil; spleen ruptured at its inferior part, not by a fissure as in the other cases, but presenting an opening the size of a dollar, out of which came a dark and putrilaginous substance; it was impossible to raise the spleen without breaking it, it was so diffluent; it separated in the hand into two portions, of which one when placed on the table became flattened like jelly, and the other portion remained attached to the diaphragm, which they were obliged to cut out to expose the spleen completely; it was not much increased in volume. The stomach was of a reddish brown in the greatest part of its extent; inflammation of all the rest of the intestinal tube; rose coloured within; bladder natural; liver gorged with blood.

Case XXXVIII.—Malignant, shivering, intermittent fever. Stay in the hospital from the evening of the 29th to the evening of the 30th July.

Autopsy; Arachnitis, Enteritis, Splenitis, Gastritis, Pericarditis.

Angelo Galetti, æt. 18, of a good constitution, was brought to the hospital on the evening of the 29th July. The patients who were near him said, that during the night, he complained continually of sharp pains in the belly. Took an ounce of bark; the whole of the body was as cold as ice.

30th 8 A. M.—Legs, thighs, fore arms, arms, cheeks, of an icy coldness; the belly, chest, and forehead were of rather a lower temperature than other parts of the body; pulse insensible at the wrists; I could feel it but very feebly in the crural arteries, it beat 100; the patient trembled and complained continually; his most common position was on the left side with the thighs bent on the belly. He understood what questions were put to him, but not sufficiently well to give proper answers; he never entered into any detail; and died at half-past nine.

Examination three hours after death.—The small intestines slightly distended with gas, were externally of a purplish red. The internal membrane was of the same colour, so that the violent injection of which they were the seat, had existed throughout the whole thickness of the substance of the intestine. This injection was recent. Inflammation of the upper half of the cæcum. The whole of the great intestine was white externally; on being opened, it presented an inflammation, the violence of which was greater towards the rectum, where the mucous membrane was so intensely inflamed, that some blood had been effused, which mixing with the mucus, formed a thick coating, which adhered to the whole of its surface. The colour of all the interior of the colon, and especially of the rectum, was of a lively, intense red; in a word, the most violent degree of inflammation that can exist without disorganization. The stomach was pale; after being washed, it presented, near the pyloric extremity, an infinity of little depressions, from half a line to a line in diameter, and some of which contained in their bottom a small spot of blood, which was easily removed. The folds of the mucous membrane were, besides, nearer each other, and more numerous than ordinary. The mucous coat itself was thickened. The liver was healthy. The spleen large and pretty hard, but of a redness of the lees of wine. Slight adhesions of the right lung; the same between the whole surface of the heart and pericardium; they were easily destroyed. Injection of the arachnoid, engorgement of the vessels which ramify on the convolutions, and of those which compose the choroid plexus.

Case XXXIX.—Malignant, shivering, intermittent fever. Stay in the hospital from the 19th to the morning of the 24th August.

Autopsy; Arachnitis, Gastro-Enteritis, Splenitis.

Vincent Crescenzi, æt. 60, of a thin but healthy habit of body, fell sick on the

19th August 1822. He was attacked with fever, which set in with shiverings, followed by extreme heat, pain in the head and belly, vomiting of bilious matter. During the night, the paroxysm terminated in sweating. He was brought to the Hospital of Saint Esprit on the 19th August 1822. The fever returned in the morning, preceded likewise by shiverings, and accompanied by the same symptoms as in the evening; the stomach was painful on pressure; the patient experienced a great heat in the inside; anxiety; depressed countenance, the features were as if flattened to the bones of the face; the colour of the face was natural, the expression dull.—(Half an ounce of bark on the decline of the paroxysm.)

Evening.—Decline of the symptoms; skin wet with a cold clammy sweat; pulse small, frequent; general shivering; pain at the epigastrium; tongue red, but moist; no thirst. (Half an ounce of bark).

Night.—The skin remains moist and cool. The patient has vomited the bark.

20th August, morning.—No fever; disappearance of the pain in the belly; quiet, aspect tranquil. Towards midday, return of the fever, preceded by rigors, and accompanied by heat greater than on the previous evening; the extremities remain cold, the skin was covered with livid spots. (Saline draught, barley water.)

Evening.—Hands and legs wet with a cold clammy sweat; the fit began to decline. (One ounce of bark, which he vomited.)

21st morning.—Universally calm, no fever, but the extremities continue cold. Epigastric symptoms a little marked, pulse still small and frequent; towards midday return of the fever, always preceded by rigors; exacerbation of the preceding symptoms. The cold continues in the extremities, the patient is not sensible of it; he is as if benumbed, and in a torpid state. (One ounce of bark to take at night.)

22d morning.—Skin less cold, but not yet at its natural warmth; pulse small and frequent; clammy sweat on the whole surface of the body; expression dull. (Two ounces of bark.)

Towards 10 o'clock.—Return of another paroxysm; pulse insensible at the wrist, 140 at the crural artery. Icy coldness of the extremities; the abdomen is flat, empty and resting on the vertebral column; pain in the stomach, excessive sufferings; agitation; the patient, who has never lost his senses, is in a state of torpor, so that he can scarcely answer questions; colour of face, natural. (Twelve leeches to the epigastrium, blister to the arms; ℥iij. of bark to take in the night, which he vomited.)

23d.—Remission well marked. Towards 9 o'clock, return of coldness, like that of marble; pulse almost imperceptible, 146. Pain of stomach more urgent; great suffering; anxiety; eyes hollow. The cold which had at first only attacked the extremities, had now reached the shoulders, and was extending towards the base of the skull. The head cool; the thorax and abdomen were below natural temperature, although not so cold as the limbs.

Evening.—Same state: he was not sensible of the coldness of his legs, but could distinguish when touched that the person was warmer than himself; more violent pain in the stomach; he lies supine. (Cupping glasses applied to the epigastrium, sinapisms to the feet, blister to the thighs, nine grains of the sulphate of quinine, which he has not vomited.) During the night, increase of all the symptoms. Dead. He was sensible to the last moment, which was about three in the morning. Eight hours after death the body was stiff, the limbs hard, as if they had been frozen, the belly hollow. The temperature of the air was above 20° (Reaumur.)

Dissection.—Slight injection of the arachnoid; engorgement of the vessels which ramify upon the convolutions; an effusion of yellowish serum between the foldings of the arachnoid; cerebrum and cerebellum, natural; heart and lungs healthy. Stomach grey externally and contracted. Inner surface of a bright red, deeper still towards the pylorus. Foldings of the mucous mem-

brane better marked than usual. Small intestines grey externally and contracted. Internally their redness was brighter than that of the abdominal muscles, which afforded us a point of comparison. To give an idea of this inflammation, the colour of the large intestines could be compared to that which they would receive were they soaked in black blood. This inflammation increased as it approached the S., and the rectum; liver healthy; spleen of a middling consistence, between the state of degeneration and health, This inflammation could be compared only to that of the 30th case.

Case XL.—Malignant, shivering intermittent, with hiccup. Stay in the hospital from 7th to the evening of 8th July. Autopsy; Arachnitis, Gastritis.

Vincent Cola Paolo, of Rimini, æt. 40, of a good constitution, residing at Roma Vecchia, entered the hospital on 7th July. Had been attacked with a paroxysm of fever on the previous evening. On the morning of the 7th, his state was the following: Hands colder than those of a dead person; pulse 108, small, contracted; hiccup regular in its returns fourteen times in the minute; position supine; sighs drawn easily; answers pretty correctly, he experiences pain in the region of the liver. In the evening, the fit declined, and the hiccup disappeared.

On the morning of the 8th complete return of senses, and natural expression, which, during the paroxysm, assumed that particular aspect, which characterises those labouring under the fever; but the hands have always an icy coldness, which extends half way up the fore arm. According to his own account, he is not aware of their being cold; but on placing them on his belly, he at once becomes sensible of their coldness; he speaks as in the state of health. At nine o'clock, his appearance became as if besotted; he replied with hesitation and reluctance. Has an inclination to sigh. He lay on the side, with the legs bent upon the abdomen; the fit commenced, the cold gained upon the trunk, respiration became short, some tendency to hiccup; in short he died at three in the afternoon, with the eyes open. He took some bark during the apyrexia.

Examination after death. General injection of the arachnoid, which is thicker than natural, red, and as if doubled by a sanguinolent false membrane; the vessels distributed upon the circumvolutions of the brain are engorged; the stomach is much inflamed in its pyloric half, the rest of the intestinal canal healthy.

Case XLI.—Malignant, shivering intermittent fever. Stay in the hospital from the morning of the 11th to the evening of the 12th July. Autopsy; Arachnitis, Gastro-Enteritis, Splenitis.

Angelo Donni, of Milan, æt. 35, weak, lymphatic constitution; preparer of macaroni. On the 5th July 1822, he entered one of the grottos of Monte Testaccio, when he experienced a general sense of cold, which he attempted to shake off by drinking seven or eight glasses of wine; but could not however warm himself. He then felt a great weakness, which was the predominant symptom during the six days previous to his entering the hospital. His state had so little of a decided febrile character, that, according to his account, the medical man could not tell him if he had had the fever. He had a sense of general uneasiness; took an emetic and a purgative, and returned to his work; but the general state of disease and uneasiness increasing, as likewise the weakness, on the 11th of July in the morning he came to the hospital of Saint Esprit, on foot, supported by a man on each side of him. Being arrived in the 1st ward, where I first saw him, he seated himself upon a form, and appeared to feel ill. He let himself fall down upon the right side, but the expression of his countenance was not that of a person fainting. There was something in the motions of his head, of his eyes, resembling those symptoms produced by drunkenness, and not that want of power occasioned by the cessation of the

motions of the heart. He was supported merely, and recovered; he was then enabled to ascend more than 30 steps, in order to reach the clinical ward. When in bed, the following was his condition; pulse frequent, weak; temperature of thighs, legs, hands, and arms, cold; tongue moist and not red. He was able to give a history of his previous state, nevertheless he begged the physician to question his companion, who accompanied him to the hospital, for although he had neither delirium, nor coma, nor syncope, he appeared so confused, so little master of his ideas, that he declined to give any account of it. All he assured us of was, that he had never had the fever. He has not been to stool since the purgative; in the afternoon he was twice ill.

Evening.—Pulse scarcely perceptible, great pains, extremities cold, the left hand more so than the right; it is of a livid colour. Temperature of the belly, of the chest, almost natural; face pale, delirium, agitation, inquietude. (Decoction of bark ℥viij. Extract of bark, theriaque, ā ā. ℥ij. Laud. liq. anod. camph. emuls. ā ā. gr. xx. blisters to the thighs.)

12th July.—At half-past one in the morning, sweat general, copious, but cold. In the morning at the visit, weakness always the same; pulse insensible at the arms, which are cold, as also the thighs; the belly is a little warmer but it is also below the natural temperature; pulse at the temples 114. The blistered surface pale, no water under the epidermis, which remains only detached. He has lost no part of his judgment, but manifests a tendency to drowsiness; complains of no pain, the belly is not tender on pressure; the principal ailment is great weakness. (Blisters to the arms. Bark ℥ij. in the wine.)

A little later, return of the same symptoms, alternating with delirium and drowsiness; general sense of cold intense; died at half-past five in the afternoon.

Half an hour after his death, the body was warmer than during life.

Examination fifteen hours after death. Stomach highly inflamed between its great curvature and the pylorus. Intestines presenting traces of inflammation in some points. Spleen soft and pulpy, liver healthy, old adhesions of right lung. Before opening the cranium, the head was separated from the trunk, when there escaped by the occipital foramen a great quantity of bloody serum. Injection of the arachnoid in its minutest ramifications, but a little more on the left than on the right side. Great engorgement of the vessels distributed on the circumvolutions, more marked on the left side. Grey substance of the brain, of a pale, rather than of a deep hue; choroid plexus pale; serosity between the circumvolutions; brain of a soft consistence.

If any other instances were wanting to prove the inefficacy of the ordinary plan of treatment in severe cases, they will be readily found in contemplating the following table of results, which befell one of the finest armies, which Great Britain ever sent from her shores, and which went to Walcheren on the 5th July 1809. The diseases were intermitting and remitting fevers. The men did not die from want of bark, and there never was a finer medical staff; the members of which displayed the greatest zeal and talents, and many of them fell victims to their assiduity.

	Officers.	Men.	Total.
Embarked on 5th July 1809,	1,738	37,481	39,219
Of these, there were killed in action,	7	99	106
Died on service,	40	2.041	2,081
Sent home very ill,	20	1,859	1,879
Deserted to the enemy,		84	84
Discharged,		25	25
Of these, there returned home with the army,	1,671	33,373	35,044
Of which number, were sick on 1st Feb. 1810,	217	11,296	11,513

From the facts already detailed, I think I may safely draw the following conclusions:

1. I need scarcely say that bleeding in the cold stage will not necessarily produce death.

2. That this practice will sometimes cure the disease; at others it will prove beneficial by breaking the chain of diseased action, and rendering the subsequent paroxysms milder and milder.

3. That bleeding in the cold stage has in almost every case cut short the cold fit, and prevented the subsequent stages of the paroxysm, so that the hot and sweating stages are saved. It seems to operate by anticipating the natural efforts of the constitution, removing the internal congestion, and restoring the lost balance of the circulating system.

4. That it promises to be most serviceable in severe autumnal intermittents; and more particularly in the pernicious and malignant fevers, as they are termed, of Italy, Holland, and other marshy countries, which are well known to be very fatal under the ordinary treatment. In these cases the reaction of the system cannot fully develope itself, in consequence of the extent to which internal congestion has taken place, and which this practice will remove.

5. That it may be used with safety in any climate where the cold stage continues long and threatens danger.

6. That bleeding in the cold stage is, at all events, more successful than in the hot stage, or than in the intervals; for although I have often seen bleeding used in such circumstances, and with advantage, by mitigating unpleasant symptoms, yet I have never known the subsequent paroxysm prevented by it.

7. The practice may be adopted in the first stage of all fevers.

8. If these cases possessed no practical merit whatever, they promise to be productive of great advantage to medical science, by destroying the very foundation of the erroneous system of Cullen. The doctrines upon which this system is founded have, to this day, bewildered old and young in the profession, who think and act only under the nod of authority. Cullen's system has been a great bar to all improvement in medicine, and is the principal cause of the backward state of pathology in this country.

Med Chirurg Soc
Edinb
November 16th 1830

FURTHER OBSERVATIONS

ON

INTERMITTENT FEVER,

IN REFERENCE TO THE BENEFICIAL EFFECTS OF BLOOD-LETTING IN THE COLD STAGE.

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(From the Edinburgh Medical and Surgical Journal, No. 93.)

My first communication on intermittent fever * may have been thought deficient, from the absence of all reasoning on the subject; but I considered it most expedient to state the facts as they had occurred to me, and to leave them before the profession for some months, together with such conclusions as I thought myself warranted in drawing. I expected considerable opposition and much special pleading from the numerous staunch disciples of the Cullenian system of medicine, merely because it is natural for the human mind to cling to the authority under which it has been fostered and matured.

The object of this communication is to obviate the objections which may be urged against the practice of bleeding in the cold stage, and to adduce my reasons in its support.

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* Inserted in vol. xxvii. of this Journal.

1*st*, The grand objection to bleeding in the cold stage of intermittent, viz. That it will inevitably produce death, must henceforth be abandoned. Cullen's system did not indeed create this objection ;* but his dogma of " debility, diminished energy of the brain, and spasm of the extreme vessels" being " the proximate cause of the cold stage," gave the erroneous assertion so much weight, that, even after perusing the facts recorded by me, and the public manner in which the trials were made, some highly respectable persons still think that some mistake has been committed. Let such gentlemen reflect upon the practice they would themselves pursue, if called to a case in which congestion of the brain had taken place to such a degree as to produce all the symptoms of convulsions or of apoplexy, or in which congestion of the lungs had caused a near approach to asphyxia. They would not hesitate to open a vein even when there is no heat of surface, and a pulse by no means strong, perhaps so weak as scarcely to be felt at the wrist. I beg they will also recollect the practice pursued by our brethren in the East Indies in the worst forms of cholera. It appears, that, if the practice is had recourse to in proper time, if, in fact, they can put the blood once more in motion, the patients have the best chance of recovery. In such extreme cases powerful

* In my former communication I have erroneously attributed to Celsus the assertion *that bleeding in the cold stage is death.* On a careful reference I find no allusion made to such a practice in his works ; but in treating of the danger of bleeding in *vehement fevers* he expresses himself thus,—" *Quod si vehemens febris urget, in ipso impetu ejus sanguinem mittere*, HOMINEM JUGULARE EST." Lib. ii. cap. 10. I was led into this error, which I am glad to acknowledge and correct, by a statement made to that effect by the late Dr Gregory in his Lectures. " I have no doubt, therefore," (said he,) " that the causes producing fever act first by inducing debility, and accordingly we find that stimulants employed at this period have often produced good effects in checking the disease, while evacuations, as *blood-letting*, which at another period of the disease might have been proper, if employed in the *first stage, never fail to be attended* with most dangerous consequences, or it is, to use the words of Celus, ' *hominem jugulare.*' It appears to me that this justly celebrated individual was himself misled by a statement made by Sir John Pringle, who, in allusion to the good effects of bleeding in the camp fever which he describes, observes at page 210, (Observations on Diseases of the Army, Ed. 1768,) " A person unacquainted with the nature of this disorder, and attending chiefly to the paroxysms and remissions, would be apt to omit this evacuation, and to give the bark prematurely, which might bring on a continued inflammatory fever. A vein may be safely opened either during the remission or *in the height* of the paroxysm ; for besides that I have observed the remission to come sooner and fuller after hemorrhage, I have repeated experience of the safety of bleeding in the hot fits ; and not only in this, but in the marsh fever, even after it had come to almost regular intermissions. In order to make Celsus's maxim (he quotes the above passage from lib. ii. cap. 10.) consistent with this practice we must interpret his terms *impetus febris* in the sense of that chillness or cold fit which preceded the hot one in the fevers which he describes, *for then bleeding would indeed be improper.*" This is straining an author's statement to suit other views with a vengeance. The meaning of Celsus is clear and precise,—he makes no allusion to the cold stage. If the reader will refer to his chapter on the cold stage of intermittents, no allusion whatever will be found to bleeding. This shows how likely we are to be misled by the authority of a name.

stimulants may be administered to raise the heart's action for the moment, while the bleeding unloads the organ, and enables it to continue its contractions with sufficient energy to pump the blood to the surface.

If it be said that these are not cases of intermittent fever, —that the causes, the symptoms, the course, and terminations, are different; my answer is, that the pathological eye can see connections and similarities, which one guided by mere symptoms will never be able to discover, or perhaps believe, after they are discovered. To such persons in the profession as have "pinned their faith to the sleeve" of Cullen, I shall say nothing in this paper. On a future occasion it is my intention to analyze Cullen's doctrines regarding fever, with a view of showing how erroneous and unphilosophical they really are. If my time will permit, I shall then bring before the profession some views which, in my humble opinion, are not only better calculated to explain the phenomena of fevers, but which will also in a great measure, account for the discrepant histories that have been handed down to us, and the different success of opposite modes of treatment. It may be proper for me in this place to make a short declaration of my faith. I am not one of those who think that the combination of symptoms denominated fever is invariably produced by inflammation of one viscus, or set of viscera, or that fever and inflammation are synonymous terms.

The success of bleeding in the cold stage of intermittent fever is a new and an important fact in the practice of medicine. It is applicable not only to intermittent fever, but to the first stage of all other forms of fever. I have frequently put it in practice myself in the common fever of this country; but it has been employed much oftener by my dispensary pupils, and always hitherto with marked success.

Two men were affected with similar symptoms, indicative of the first stages of fever. They were both young men, and had been living pretty much alike, and breathing the same air. Both complained of languor, debility, headach, &c.; and both had frequent chills and flushes of heat. One whom I bled during a chilly attack was convalescent on the third day. The other case, which was then by far the slightest, was treated in the ordinary manner. He was six weeks confined to bed, during which time his life was several times in jeopardy, from pulmonary, cerebral, and gastro-intestinal inflammation. He was delirious; picked the bed clothes; passed urine and feces involuntarily in bed, and was covered with petechiæ. He was indeed cured at last, but at four or five times the expence of blood,

without taking into account the local bleedings by cupping and leechings.

2dly, But, in the second place, it may be said, that although bleeding in the cold stage does not actually produce death, its immediate or ultimate effect must prove debilitating.

Before appealing to the facts as they have occurred, I may be allowed to mention that it is a common, and often a fatal error in medicine to mistake mere oppression for debility. In an ordinary cold stage it is not actual debility, but general oppression, which takes place, partly from the overloaded state of the heart, but also from the functions of many organs becoming more or less impeded in consequence of venous congestion, and likewise, I have no doubt, from the want of a sufficient supply of proper arterial blood. In all the cases which I have seen, the immediate effects of bleeding were not only not debilitating, but decidedly invigorating; and even in some few instances in which the bleeding produced a tendency to syncope, the feeling of debility was only slight and transitory. The remedy seems to have an invigorating effect merely by removing the oppression. It restores the lost balance of the circulation, and also removes the venous engorgement from viscera, whose functions are necessary to life. I have myself been surprised at this sudden change from apparent debility to actual strength, the pulse from being weak, becoming strong, even in old standing cases, in which the constitutions of the individuals were materially injured by repeated attacks of the disease. I shall merely refer to the cases lately published in this Journal.

It will be observed by glancing at Case I. (that of Ward,) that he had been affected several times annually for fourteen years, and that his constitution appeared to be much broken down; but his strength began to improve from the moment he was bled in the cold stage. I had daily opportunities, for some months afterwards, of seeing this man, and, as my report states, "his constant tale was, that he had not felt so well, or so much of a man since he went to Walcheren," where he was first attacked when serving with the expedition in 1809.

The patient treated by Assistant-Surgeon Marshall, (Case VII.) deserves particular attention. The health of this individual when he was blooded by Mr Marshall was so much impaired by repeated attacks of ague, that he was, in the first instance, sent home from Jamaica, and he was ultimately discharged from the service, having been for some time dropsical. Even in this unpromising case the cure seemed to be as sudden and as permanent as that which took place in Ward's case.

In the eighth case it will be perceived how much the patient's constitution had been injured by the disease. He represented his

strength, which had been previously very great, to be reduced to the weakness of a child. The report speaks of him in these words, " his look is meagre and emaciated. He appears the wreck of a strong and active man." Immediately before the first bleeding " his pulse was weak and fluttering, so as not to be counted;" but after the abstraction of sixteen ounces " he was free from tremors and pain, and said he felt quite well." " His pulse was now a good pulse;" and although the report states that " he showed some tendency to syncope before the arm was tied up," yet in an hour exactly after the operation " the pulse was eighty and full." This took place on Thursday, 28th December 1826; and on the following Sunday he was bled a second time in the cold fit. The report states, that " the feeling of debility was so overwhelming that he declared he could sit no longer on a chair. His breathing was quick and laborious, and his teeth chattered." The vein was opened, and the report goes on to state, " although a minute before he had declared he could not sit up a moment longer from debility, yet he now said he felt his strength restored, and he had no wish to lie down, and in less than ten minutes I had the pleasure of seeing him running home." His pulse, which before the bleeding was 100, and so weak as scarcely to be counted, when he left the dispensary was 86, and of good strength.

I must refer the reader also to the second case, that of Atkinson, who was bled in the cold stage, which had continued with violent tremors, approaching to convulsions, for twenty-six hours before I saw him. Yet there was no debility either immediately or ultimately. On the third day he was convalescent; he made a good recovery; and had no return of the tremors. He got neither bark nor arsenic. If this man had not been bled it is not easy to say how the case would have terminated; treated according to my plan it could not possibly have ended more favourably.

It has been said that the effect of bleeding in all cases is debilitating. " Even in continued fever, when the disease is cut short by the bleeding, the effect is debilitating; but as in intermittent we may expect a number of paroxysms, the debility is still more to be dreaded in the progress of the disease." Now this is after all only a truism; but allowing that the effect would be productive of thrice the degree of debility, yet who would not joyfully compound to cure the fever at the first onset of the disease even at such an additional expence? The cases I have already published, which were narrowly watched by a multitude, I may say, of observers, proves that this kind of debility is purely hypothetical. Not only in fevers produced by sub-acute inflammatory action of some important organ, but

also in pure inflammations of the same parts, we bleed in order to produce debility, not as a matter of choice, but as choosing the least of two evils. I shall show hereafter that this term, debility, is ever haunting the imagination of the Cullenians. I shall now only mention, that, according to this erroneous system, not only are spasm, delirium, and the tremors, but also the oppression of the pulse, the disorder of respiration, the want of appetite, the nausea, and the vomiting which accompany a paroxysm of intermittent, all ascribed to debility. It is no wonder, therefore, that from *a priori* reasoning the disciples of this system should object to bleeding under such erroneous pathological views. But they should recollect that I bleed only in certain cases of intermittent, not to produce debility, but to restore the balance of the circulation at as small an expence of blood as possible.

3d, Among other objections, one of a very whimsical nature has been made against this practice. It has been said that it cannot be successful, because "it attacks the *effect*, and not the *cause*, of the disease." Let me ask who knows anything of the cause of any disease which affects mankind? There is a great deal of pedantry and ambiguity concerning this term *cause*, as it is generally used in medical language. In employing it, some mean to express the agent, whether known or unknown, which actually induces the disease. For example, the application of boiling water to the surface of the body produces inflammation and its consequences. This is a known cause. An imaginary substance, to which the name of marsh miasm has been applied, is an example of the second. It is this unknown substance to whose agency intermittent fever is ascribed Another sense in which the term *cause* has been applied is the first diseased action induced by either of the agents. It can easily be shown how very absurd this objection really is, taking it in either sense. In the case of the scald we are called upon to treat the effect and not the cause;—the hot water is removed, but the effect remains.

A. B. has intermittent fever; the cold stage is long and severe; the constitution is too much oppressed, and the patient dies; or rather let me suppose, he would have died but that he is bled. Is it not absurd to object to the practice merely because the practitioner is not "measuring swords" with the cause, viz. the marsh miasm, but treating the effect? Or, A. B. has had the cold fit, and is now labouring under high excitement, and the powers of the constitution are unable to produce the sweating stage; inflammation of the head, chest, or abdomen takes place; or it may prove to be a continued, remittent, or bilious remittent fever; are we not to treat the case

pathologically, because we should only be attacking the *effect*, and not the cause of the disease?

In the other sense it will be seen to be an equally erroneous objection, viz. the first diseased action produced by any agent whatever. Let me ask who can point out the first link in the chain of morbid action. Is it in the nervous system, or in the vascular? Both are seriously involved. If in one, how is it communicated to the other? Who knows the structure of a nerve, and who is acquainted with its physiology? If in the vascular system, whether is the primary diseased action in the arteries or veins, in the capillaries or the trunks, or is the blood itself affected?

It is wholesome to put these questions home to that medical man who is too nice in investigating the occult causes of diseases. If the practice pursued by medical men were to be rejected, and condemned as being unsatisfactory and unscientific, because they treated the *effect* and not the *cause* of the disease, according to either sense, I fear the profession of medicine would soon be at an end, and its professors left in a more miserable plight than Shakespeare's apothecary. Upon this principle, it is unsatisfactory and unscientific pathology which leads us to bleed, blister, and give purgatives for the cure of any acute disorder, because we are treating the effect, and not the cause of the disease.

But perhaps the term "*cause*" is used in the same sense in which Cullen employs the expression "proximate cause of the disease." There never was a phrase invented in medicine which has occasioned so much embarrassment to students. Cullen means it to represent the actual disease itself. If the term "*proximate*" is necessary at all, it should be used to denote the proximate cause of the symptoms. If the objectors to bleeding in the cold stage acted upon this interpretation, I should feel much obliged to them to explain to me what intermittent fever is? I may here tell them I will not take Cullen's definition in answer. Like all, or almost all his definitions, it is erroneous; and moreover, it tells nothing of the "*proximate cause of the disease.*"

4th, Another objection has been made, that bleeding in the cold stage is only, to say the very best of it, a "palliative remedy." The same objection applies to bark and arsenic. "It may, however, be remarked," (says Sir James Fellowes at p. 382,) "that, in taking a review of the general practice in intermittent fever, the means usually adopted appear to have had no other view than to lessen the inconvenience of the paroxysms, and that they have not always been sufficiently active to put a stop to the disease in a way that was satisfactory to the patient or

to the practitioner." To say the very worst of it, therefore, the practice does not stand on weaker ground than the other remedies. I have seen much mischief done by the use of bark in aguish districts; and I have known one man killed by arsenic. Clark (On Long Voyages) mentions a similar accident, but I have as yet known nothing but advantage to proceed from bleeding in the cold stage. I wish not to be understood to mean that bark and arsenic will always produce bad consequences, or that bleeding in the cold stage will invariably prove beneficial. I am convinced that both kinds of remedies require sound judgment in their application; and that, if there is any organic engorgement or alteration of structure, bark must be injurious, if it has any effect at all, and that this is one of the cases likely to be benefited by bleeding in the cold stage.

5th, This practice has also been objected to, because it is a *mechanical* remedy. It is said "to affect the powers which move the blood, but it cannot affect the altered state of the blood itself." That it does affect the powers which move the blood is a fact which cannot be denied, and this is precisely one of its great advantages. But to say "that it cannot affect the altered state of the blood" is a mere assertion. I maintain that it does also affect the altered state of the blood. Without entering into the physiological controversy about the nature of the changes which the blood undergoes during its circulation through the lungs, I may content myself with stating the fact, that some change necessary to life does take place on the blood in the lungs. From the commencement of the cold stage the condition of the respiration decidedly proves that the functions of the lungs are much embarrassed. It is not even necessary to inquire into the cause of the pulmonary distress. They cannot perform their functions;—does it not therefore follow that the blood cannot undergo the usual and necessary changes? The blood is in a morbid condition, and when taken from a vein in very severe cases it looks black and does not coagulate. Under such circumstances, when bleeding is had recourse to, it relieves the circulation, unloads the vessels of the lungs, and thereby enables them to perform their functions; the blood is acted upon, and the usual changes are effected. Therefore this "*mechanical remedy*" does also affect the altered state of the blood.

But there is another interpretation of the expression "*altered state of the blood.*" It may relate to a supposed alteration produced on the blood by the morbid agent, the marsh miasm; and I have no doubt this is the sense intended to be conveyed. In the first place, I may remark that we know nothing whatever of this marsh miasm; we assume the existence of

such a substance; and some have even ventured to give it sensible qualities, as smell and specific gravity. This is certainly going quite far enough in mystery and darkness; but to say that it directly affects the blood is a gratuitous assertion well becoming a true Cullenian, whose whole system of physic is founded upon, and carried on from page to page by the most erroneous and the weakest assumptions. This has always been my great objection to this system. Its author lost sight of the true Hippocratic maxim in the investigation of diseases. Cullen decared that there were more false facts in medicine than false theories; and on one occasion he asserted in his lectures that what were called medical facts were nothing more than medical lies. It will be seen that whenever Cullen came to a difficulty, instead of waiting patiently for an accumulation of facts to enable him to investigate all its bearings, he made a leap over the obstacle by assuming a certain thing for a fact. He established a system of special pleading, and a symptomatical pathology, which have been exceedingly injurious to medical investigations; and it will soon be generally acknowledged that his labours have retarded, rather than advanced, the progress of medicine.

It has also been said that "bleeding in the cold stage has generally been condemned, and probably from experience." I beg most respectfully to ask by whom has it been practised, and for what reasons condemned? * In the original paper I have made a general allusion to the cases in which it appears to me this practice is likely to be beneficial, so that I need not again trespass on the patience of my readers.

By bleeding in the cold stage we give our patients the benefit of the following four advantages:—

1*st*, The injury which in many cases results from the continuance of the venous engorgement, which so constantly leads to organic diseases, is avoided.

2*dly*, The danger proceeding either from the want of sufficient reaction, or from its excess, is also avoided.

3*dly*, The practice prevents debility, in a direct manner, by saving the vital fluid.

4*thly*, The chance of a return of a paroxysm is diminished; or if it should recur, the force of the attack will in general be found to be broken; and in that case a most important point will be gained, by affording an opportunity for the administration of other remedies, as bark or arsenic, which might previously have been exhibited in vain.

* I have shown in a note at p. 277 the manner in which it is probable this prejudice originated; for a prejudice it is, of which those who have so long acted under it have much cause to be ashamed.

Upon the *first* of these advantages I need scarcely insist; for no one has attended closely to the phenomena accompanying and succeeding severe paroxysms in marshy districts without meeting with mischief produced by the continuance of venous engorgement.* When the sweating stage comes on, it relieves some of the more urgent symptoms, together with the burning heat of the skin; but all the symptoms are often imperfectly mitigated. Pain in some region continues to distress the patient; his nights are disturbed; thirst continues; the bowels are out of order; the tongue does not clean; the appetite does not improve; and the strength declines. These indications of disease may be slight or severe. If only slight, the intermittent still continues its regular paroxysms in spite of bark and all other remedies, and sooner or later the constitution gives way;—but if these symptoms be severe from the first attack, the health sooner breaks up, and the usual remedies are found to be equally inefficacious. In either case the constitutional disturbance may be only the effect of functional disorder, proceeding from the continuance of venous engorgement of one or of several organs; or the same symptoms may be occasioned by structural derangement from the first, generally from subacute inflammatory action. In the former case removal to a dry elevated situation, attention to the bowels, and to regimen, will in many instances perform a temporary cure; whereas in the latter case the same means will have no effect whatever in restoring health, and the usual remedies, bark and arsenic, almost invariably prove injurious. I would also observe that in such cases the sulphate of quinine is productive of no advantage.

Sir James Fellowes, in his Reports already quoted, in allusion to the pathology of the disease, as revealed by dissection, proves "the existence of disease of an inflammatory nature, ending in considerable vascular excitement, and determination to particular organs, especially of the liver and spleen, and that the derangements in their structure occasioned those relapses or subsequent returns of fever which took place at distant periods, and at lengthened intervals, from the original or primary attack. In fact (says he) we found *that no radical or perfect cure*

* At page 38 of Chisholm's work, last Edit. will be found the following statement, which was contained in a letter from a medical officer high in rank, it would appear, in the army at Walcheren.

"In the course of six weeks that I have been here I have sent to England nearly 8000 sick, and will send 3000 more. The prevailing disease now is intermittent fever, with its consequences, dropsies, and visceral obstructions," &c. Sir James Fellowes, in his Reports at p. 333, states that the prevailing diseases amongst the troops who had arrived at Colchester from Holland, were the remitting and intermitting fevers, with dropsies, diarrhœas, and affections of the chest.

could be obtained until the congestions which had been formed in these important organs were either lessened or removed." And even Cullen also talks of a phlogistic diathesis prevailing in the system and of congestions fixed in the abdominal viscera. (Par. 234.)

Secondly, Medical men who have practised in marshy districts are aware of the existence of the kind of fever which Dr Armstrong has appropriately denominated "congestive fever," in which the animal heat and the heart's action are rather under than above the natural standard. This is not the proper place to pronounce a eulogium on Dr Armstrong's professional character; but I may state, without impropriety, that he deserves great credit for bringing this matter before the profession, and for illustrating it so beautifully. His views have improved the treatment of fevers generally, and this form of fever particularly, more than could have been expected from the talents and exertions of any one individual. This is the form of fever in which brandy, wine, and bark have been so much employed to obviate debility and putridity, without reference to the true pathology of the disease. This is the form of fever which is very frequent in aguish districts, and it is confessedly very fatal; but bleeding in the cold stage, assisted by the application of heat, and even sometimes by the use of brandy, may be successfully employed. Again, when the rigor takes place, whether severe or slight, there is no telling what mischief is to happen—The patient may die in the cold stage; * or the reaction may run high, and may not be succeeded by the sweating stage. In that case the disease is said to be a fever of some particular type, as a continued, remittent, or bilious remittent. Or inflammation may take place in some internal organ. Often, in warm climates have I seen the oldest and the ablest practitioners of the day perplexed and disconcerted by the occurrence of such circumstances in the course of intermittents under the usual treatment. Sir John Pringle states at page 14, "many of the remittents degenerated into continued fevers, and were often fatal; and the intermittents, by being stopped before the proper evacuations were made, or not secured against relapses, changed likewise into continued fevers, or ended in dangerous obstructions of the viscera." Bleeding in the cold stage in a majority of cases, if employed in time, will, I am persuaded, diminish the chance of such evils, by assisting the efforts of nature in removing venous congestion and easing the circulation, while the hot

* It has unfortunately happened sometimes that the disease has been so insidious, that the second paroxysm, after an imperfect intermission, has completely overwhelmed the patient, and put an end to his existence.—Vide Chisholm, p. 51.

and sweating stages will be altogether prevented from taking place.

The *third* advantage is, that bleeding in the cold stage, instead of producing, will directly prevent debility, by saving the vital fluid.

The best maxim in physic is to get rid of diseased action as quickly as possible, as there is no saying what is to follow in the train of consequences. It cannot be denied that the continuance from day to day of such diseased action as occurs in intermittents will produce speedy debility, so that a patient has to suffer all the loss of strength thereby occasioned before the sweating stage comes on. The profuse perspiration which closes the paroxysm is beneficial principally, although not entirely, as a natural mode of depleting the system. The fluid perspired comes at once from the circulating blood, and there can be no doubt exhausts the strength to a considerable degree. In Ward's case the rigor ceased when 8 ounces were abstracted, and by the time 12 ounces were taken he was free from all complaint. In Bullock's case perfect relief took place when he had lost 15 ounces. At the second bleeding, ten days after the first operation, the unpleasant symptoms vanished when 14 ounces were taken. The same evening he was attacked by violent headach and pain in the belly; he was again bled from the same orifice to the amount of 12 ounces, with complete relief. This individual suffered nothing from debility in consequence of all these bleedings. The force of the disease was broken, and he gradually recovered his health without any of the usual remedies. In Smith's case the tremors, and all the other unpleasant symptoms, which were "more than usually distressing," ceased all at once, and at the trifling expence of 12 ounces of blood. This was done on 7th March, and it broke the force of the disease till the 22d, when he had another severe paroxysm. He was not seen by me till the hot stage had taken place, and he subsequently had a severe head attack, which I have no doubt might have been prevented had he been bled again in the cold stage. In the case of Macauley, as well as in that of Clark, the operation was not well performed, owing to the agitation of the body. A small orifice was made, and the blood flowed too slowly. Macauley lost 24 ounces, which occupied fifteen minutes in flowing, and Clark lost 20 ounces, which also flowed very slowly; yet in both individuals the unpleasant symptoms immediately vanished.

In the eighth case the removal of debility by this plan of treatment, in a subject already much reduced by the long continuance of the intermittent, was quite striking. But in none of those cases was there either immediate or ultimate debility. I

must also refer my readers to the remarkable case of Atkins, the second in my former paper, in proof of the same fact. I could speak of many more cases, and particularly of my own; but I wish to confine my observations to those already recorded, till farther experience shall be obtained on this interesting point. In the meantime, from my own experience, I think I have made out that debility is prevented by this practice, and that one way in which this is produced is by directly saving the vital fluid.

In the *fourth* place, I have to observe, that in some cases there will be no return of the paroxysms, as happened in three of the eight cases published, viz. the first, second, and seventh; and be it remembered they were the worst cases of the whole.* The constitution of the first and seventh had been broken down by repeated attacks, the one in Walcheren, the other in Jamaica. Both had used bark and arsenic, and all the other remedies usually employed in vain. And in the ninth and tenth cases recorded in this communication the good effects are well displayed. In all the other instances it will be observed that the diseases were mitigated. In Bullock's case there was no return of the paroxysms for eight days after the first bleeding; and in the rest, the paroxysms were mitigated in violence, shortened in duration, and attended with much less suffering. As far as my own experience has gone, I am inclined to believe that bleeding in the cold stage will in many intractable cases bring the system into condition to be operated upon by remedies which had previously been exhibited in vain, which must be admitted to be a great advantage gained.

Before bringing this communication to a conclusion, I may briefly mention some precautions which ought to be employed when bleeding is had recourse to in the cold stage of fever. Before a vein is opened the pulse and the temperature of the body should be noticed and recorded. Bottles filled with hot water or heated bricks should be applied to the extremities, and in extreme cases to other parts of the body. A large orifice should be made in the vein, in order to alter the determination of blood at as small an expence of that fluid as possible.

If the cold stage has either continued long and threatens life, or if, after making a good orifice, the blood does not flow freely, it is good practice, I conceive, to give a powerful stimulant, as warm brandy and water. The object of this is too evident to require illustration. I shall only further remark, that, as

* The same result has taken place in several cases since this paper was sent to the press, and in one it has failed. The disease returned at the next period, but the existing paroxysm was cut short, and the man's health improved. These cases will be published in a subsequent Number.

there is a period in every acute disease when bleeding is decidedly injurious, so likewise in intermittent fever there may be a combination of circumstances which might prevent me from carrying it into execution, although I have as yet seen no such case. Care must also be taken to attack any local disease by the appropriate remedies; local bleeding, blistering, attention to the bowels and to regimen.

On the approach of the cold stage the patient covers himself with a load of bed-clothes. If care be not taken by the practitioner to remove them after the bleeding, a hot skin and copious perspiration will likely follow and do mischief, by unnecessarily increasing the debility. In the sixth case it will be observed that considerable heat of skin and thirst took place some hours after the bleeding, which the patient himself "attributed to the pressure of too many bed-clothes, the blankets not having been removed, which he had caused to be heaped upon himself, on the approach of the cold stage."

Great attention should be paid to discover whether or not there is any local disease. It should never be forgotten that some organic lesion must inevitably be the consequence of repeated paroxysms of intermittent. Medical men are too much in the habit of treating disease in a routine manner after they have given it a name, without paying sufficient attention to the pathological condition of the body. In this affection they give bark or arsenic as a matter of course, because it is an ague. There is another error into which they are liable to fall, by imagining that the spleen and biliary system are the parts which exclusively suffer. But affections of the brain, lungs, stomach, and bowels also frequently take place. In fact, there is almost no organ or tissue which does not sometimes suffer in the chain of consequences. I have seen fatal affections of the heart apparently take their origin from intermittent fever; but the lungs of all organs, after the liver and spleen, appear to me to suffer most. The affection is generally bronchitis. It has been long well known that dysenteric symptoms come on with the first paroxysm, and indeed more frequently the dysentery has preceded the intermittent. As long as these internal diseases continue, should they only exist in a mild subacute form, little benefit can be expected from the usual remedies prescribed in agues.

In concluding this paper I must remark, that several of the cases already published could most certainly have been cured without the bleeding. It was employed, however, to satisfy the scruples of many gentlemen who fancied that there might be some error in my previous observations; and as I knew from experience, that it was at least a harmless remedy, I thought it expedient to show the effect of stopping the rigor,

instantly, as often as I had an opportunity. I had several cases which were treated successfully without either bleeding, bark or arsenic, merely to show my pupils how much might be done where there was no appearance of local disease, by attending to the bowels and to regimen. It has been asserted that the cases I have published are picked samples. If by this is meant that they were cases to which the method of treatment now explained was peculiarly appropriate, it is manifest that the charge is not only too frivolous to require refutation, but really forms the most unequivocal encomium of the remedy. That the cases are not select in any other sense, the testimony of those gentlemen who witnessed them is amply sufficient to prove. The truth is, that I published *all* the cases in which the practice was put into execution before competent witnesses. The only cases not recorded which were treated by me since I have been a lecturer, occurred since my first communication, and shall be laid before the reader in due season.

The object of my next communication will be to show the necessity of abandoning the doctrines of Cullen in teaching the Principles and Practice of Physic.

31, *Albany Street*, 1*st July* 1827.